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PRODUCTIVITY AND DEVELOPMENT OF
MANUFACTURING INDUSTRIES IN AFRICA

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NTRODUCTION

. This study is part of the work programme adopted by the Joint Conference of frican Planners, Statisticians and Demographers at its last meeting held in Addis baba from 8 to 17 March 1982.

. It has two objectives, namely, to review what statistics are available on the evelopment of manufacturing industries in the region for the period 1970-1980 and o identify and analyse short comings with respect to such data in order to suggest ppropriate measures to remedy the situation. In that respect, the ultimate bjective of the study should be to establish, as soon as possible, integrated ata collection systems which respond not only to the specific requirements of the ountries concerned but also to the stipulations of the industrial component of he Lagos Plan of Action.

. The first part of the study is devoted to a thorough analysis of data coverage nd quality as well as to the consideration of problems relating to concepts and efinitions used by the various national statistics departments and their impact n the comparability of data at the regional level.

. The second part is an account of trends in general economic indicators on anufacturing activities during the period under review. That account is especially llustrated by statistical series on the number of establishments, employment, he contribution of the manufacturing sector to the domestic product, gross fixed apital formation and trade in manufactured goods.

. The third part focuses on the analysis of production indices and productivity n about 15 African countries. There is also an in-depth analysis of the production f some typical commodities of the manufacturing industries in the region.

. Finally, the fourth part of the study puts forward conclusions drawn from he statistical review and a series of recommendations on how to improve and evelop data on manufacturing industries in the region.

. METHODOLOGICAL PROBLEMS

1.1 Coverage and quality of data

7. The problem of data coverage is closely linked with the problem of defining the scope of surveys. In a considerable number of countries of the region, especially the French-speaking countries, available data concern institutional units classified according to their main activity i.e. production units that use modern management techniques such as keeping regular and modern accounts and have absolute autonomy when effecting major transactions. In other countries, such data concern functional units or legal entities carrying out a specific type of activity within the borders of a country.

8. In both cases it is often difficult, if not impossible, to have a clear idea of the statistical units selected in total production, value added, intermediate consumption or capital formation in the manufacturing sector for the simple reason that no nation-wide survey has been carried out in this sector. In order to find a partial solution to this problem, the domestic product estimates prepared by the ECA Statistics Division were sometimes used. It should be noted that the value added calculated from the survey data is generally censored. Such value added calculations differ from the contribution to domestic product in that non-industrial costs and incomes are taken into account.

9. Moreover, since most of the data on the characteristics of production units were not available, it was not possible to carry out an in-depth analysis of trends in the manufacturing industry in the region. In particular, the study makes no mention of changes that have affected the size of enterprises and establishments, the extent to which their technical operations are integrated and their plant capacity, their system of ownership, their legal organization and product distribution methods.

10. With respect to data quality, the situation prevailing in most countries is far from encouraging. Apart from mistakes in observation resulting from staff constraints, there were often major shortcomings which were probably due to the inadequacy of the questionnaires and counting techniques, accounting and administrative practices of the enterprises or the reluctance of some industrial units to co-operate with the national statistics departments out of the fear that their statements might be used for tax purposes by the authorities. These shortcomings have resulted among other things, in inconsistencies in the statistical series on general economic indicators with respect to manufacturing activities, the operating cost structure of enterprises, and changes in ratios between production and employment. They have been adjusted as far as possible to give sufficient consistency to the study.

1.2 Definitions and concepts used by countries and their impact on the comparability of data at the regional level

11. Although during the last ten years there has undoubtedly been great progress with respect to the implementation of international recommendations on the basic concepts and definitions of industrial statistics, there are still three stumbling blocks which, to some extent, hinder the comparability of data at the regional level. They concern the definitions of the scope of statistical surveys, the selection of statistical units and the measurement of employment.

12. As indicated above, the definition of the scope of current surveys is often based on the utilization of modern management techniques although the relevant international recommendations make provision for the use of a dimensional criteria based on the number of persons engaged Even among those countries which comply with the above recommendations, not only do the dimensional thresholds selected vary quite considerably, but also the brackets of people engaged overlap only in a limited number of cases. It is therefore obvious that because of the above situation, comparison of data obtained from current surveys at the regional level can sometimes be rather approximate.

13. With respect to the selection of statistical units, the entities that are usually considered during surveys in the region are either enterprises or establishments of which one of the variants is functional units. Since key indicators such as the turnover, value added, employment and total investments can vary depending on the statistical unit selected, the data collected in the various countries do not necessarily have the same scope nor the same significance.

14. Finally, national statistical series on employment sometimes concern wage earners and sometimes the number of persons engaged. Such statistics can only be genuinely compared at the regional level if owners actually participating in production activities, their active partners and non-remunerated family workers form a very small group; such is definitely not the case with respect to handicrafts and cottage industries.

1.3 Problems relating to the measurement and comparison of productivity

15. It is well known that productivity is the ratio between production and all production inputs. Although measuring production is not too complicated, adding up production factors does pose very difficult theoretical and practical problems to which no satisfactory solutions have yet been found. Consequently, it was deemed preferable to restrict this aspect of the study to the measurement and analysis of labour productivity and to consider only the labour factor.

16. With a view to eliminating the structural differences between countries, the work initially focused on measuring and comparing net productivity using the following optimal formula:

$$\frac{\Sigma qAPA - \Sigma a^{1}AP^{1}A - \Sigma q^{11}AP^{11}A}{\Sigma aBPB \quad \Sigma a^{1}BP^{1}B \quad \Sigma a^{11}BP^{11}B} \quad \frac{M_A}{M_B}$$

qAPA qBPB designate the respective outputs of countries A and B

$q^{1}AP^{1}A$ $q^{1}BP^{1}B$ indicate intermediate consumption

$q^{11}AP^{11}A$ $q^{11}BP^{11}B$ indicate fixed capital consumption and,

M_A and M_B persons engaged

17. Subsequently, fixed capital consumption was not measured because most countries did not have data on that indicator. Value added was measured in local currency at 1970 constant factor cost and then converted into United States dollars using a conversion co-efficient based on official exchange rates 1/. The aim of the above approach is to eliminate price structure differences from one country to another and also indirect inflation-related factors.

18. It should be noted that the series presented in the study concern the total value added of the modern manufacturing sector per man/year since constraints relating to the availability of data did not make it possible to expand, as planned, the calculations to include double figure indicators of the International Standard Industrial Classification of all Economic Activities (ISIC).

19. Moreover, the calculations are based on the assumption that the composition of manufacturing output is relatively uniform from one country to another. Although this assumption may hold true for some cottage industries and sub-regions, there is no doubt that the overall levels of productivity recorded in the Libyan Arab Jamahiriya, Egypt, Rwanda and the Central African Republic for example, are far from corresponding to the same products or ranges of products because of differences in stages of economic

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1/ These are conversion co-efficients established by the International Monetary Fund. In the case of currencies with floating exchange rates, the co-efficients were weighted by import or export values.

and technological development, market requirements, social traditions.

20. Finally, in comparing data on productivity, one should bear in mind the above-mentioned problems concerning data coverage and quality, the selection of statistical units and concepts used. In particular, comparison may be biased because some countries include in the scope of their annual surveys a large number of small industrial establishments which have generally low productivity per unit of labour.

2. Trends in general economic indicators on manufacturing activities

21. During the period under review, the gross domestic product at constant 1970 factor cost grew at an average annual rate of more than 5 per cent in about 15 African countries. The highest growth rates were recorded in Gabon (10.4 per cent) Botswana (9.6 per cent) and Tunisia (7.7 per cent). The domestic product on the other hand fell considerably in Equatorial Guinea (an average of -10.4 per cent per year) and moderate or low annual drops were recorded in Angola (-3.3 per cent), Mozambique (0.6 per cent) and Sao Tome & Principe (-0.6 per cent). When compared to the total population, the domestic product was, in 1981, US$2,048 in the Libyan Arab Jamahiriya, US$1,220 in Gabon, US$458 in Tunisia and US$50 to 99 in nearly 20 countries.

22. The contribution of manufacturing industries to the domestic product increased steadily and in a remarkable way (3% to 8 per cent) in about 12 countries. In 1981 it was US$2.1 billion in Egypt as against 1.2 billion dollars in Nigeria, 0.96 billion in Morocco and 0.82 in Algeria.

23. Manufacturing industries, which accounted for nearly a quarter of Zimbabwe's domestic product also accounted for a considerable portion of the domestic product (15 to 21 per cent) in Egypt, Mauritius, Morocco and Senegal. In six other African countries including the Ivory Coast, the Upper Volta, Madagascar, and Malawi the percentage of the domestic product attributable to manufacturing industries fluctuated between 11 and 19 per cent. In Algeria and Tunisia, manufacturing industries accounted for an average of about 10 per cent of the domestic product as against 3.8 per cent and 3.3 per cent (the lowest percentages recorded during the period) respectively in the Seychelles and the Libyan Arab Jamahiriya. In the latter two countries, the relatively low contribution of manufacturing industries to the domestic product seems to be the result of economic conditions which tended to have encouraged the development of services (50 to 70 per cent of GDP), the building and public works sectors, and extractive industries 1/.

24. There was a sharp increase in the value added at current prices of the modern manufacturing sector in almost all the countries. From 1970 to 1980, it increased by 15 in Rwanda and 18 in the Libyan Arab Jamahiriya. In the Ivory Coast and Kenya, the level reached in 1980 was more than five and a half times the 1970 level. However, with the exception of two or three countries, these spectacular increases correspond to a rather moderate expansion of the manufacturing sector in that the countries of the region experienced particularly high rates of inflation during the period under review (see Table 2.9).

1/ Especially the production of crude oil and natural gas which seems to be a priority sector in the Libyan Arab Jamahiriya.

25. With respect to the number of establishments, an annual average growth rate of 9.4 to 10 per cent was recorded in the Ivory Coast, Nigeria and Somalia, and a rate of 5.1 to 7.1 per cent in Ghana, the Libyan Arab Jamahiriya, Mauritius, the Seychelles, Swaziland and Tunisia. On the other hand, the number of establishments decreased at an average annual rate of more than 5 per cent in the Central African Republic and nearly 2 per cent in Malawi. The highest number of establishments was recorded in Egypt: an average of 4,9000 units.

26. Egypt also had the largest number of people engaged in the modern manufacturing sector: between 607,900 and 882,500. Egypt is followed, in descending order by Nigeria (an average of 216,000 persons), Zimbabwe (138,000), Kenya (102,500), and Tunisia (83,000). In most of the countries, the average annual growth rate of persons engaged in industry was higher than 5 per cent. It was negative or nil in two countries: the Central African Republic and the Gambia.

27. Finally, from 1976 to 1980, manufactured products represented more than half the value of national imports in all the countries. On the other hand, their share in exports was generally very diverse and rather low: less than 1 per cent in Algeria, the Libyan Arab Jamahiriya, Liberia, Mauritania and Nigeria; it represented 26 per cent of total exports in Egypt, 51 per cent in Sierra Leone, 73 per cent in Zaire and 97 per cent in Zambia.

Tableau 2.1/Table 2.1

Produit Intérieur Brut, total (PIB) and coût des facteurs constants, 1970/
Total Gross Domestic Product (CDF) at constant factor cost, 1970

En millions de Dollars EU
In million US Dollars

Pays/Countries	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	Taux de cr.moy. ann./Annual av. growth rate
Algérie/Algeria	3622.2	3577.4	3999.5	4455.6	4960.2	5425.3	5755.6	6093.9	6508.5	6813.6	7137.6	7331.2	7.3
Angola	1537.3	1568.8	1642.5	1765.4	1644.2	998.7	798.8	830.2	848.1	856.2	896.2	885.2	-3.8
Bénin	223.9	225.0	248.3	263.7	257.8	261.6	270.9	242.4	252.3	267.1	272.7	282.9	2.3
Botswana	92.8	116.1	125.3	135.6	138.4	136.1	158.9	168.9	182.7	203.0	232.0	247.2	9.6
Burundi	227.2	233.4	218.4	226.7	242.5	239.5	254.4	279.2	288.9	293.3	292.8	304.2	2.8
Cap-Vert/Cape Verde	25.3	23.9	22.8	22.6	22.4	23.0	23.7	23.6	24.2	25.4	26.7	28.6	1.2
Comores/Comoros	26.2	28.9	30.0	30.1	33.6	29.0	23.7	24.4	25.6	27.2	29.8	31.1	1.9
Congo	236.6	249.3	250.7	278.8	287.6	290.5	284.2	271.3	261.5	271.4	282.6	291.4	2.0
Côte d'Ivoire/Ivory Coast	1192.2	1277.7	1352.5	1443.7	1458.3	1594.9	1714.4	1783.0	1983.7	2059.5	2108.0	2137.5	5.5
Djibouti	65.4	73.3	77.6	82.3	83.5	87.4	91.4	79.5	72.4	74.2	77.9	80.9	2.2
Egypte/Egypt	6041.9	6271.9	6563.9	6858.3	6959.5	7502.3	8036.6	8693.7	9459.5	10737	11182.2	11862.9	6.4
Ethiopie/Ethiopia	1760.0	1843.6	1893.2	1920.8	1922.4	1967.2	1978.8	1956.4	2058.0	2174.4	2308.0	2413.6	3.0
Gabon	279.8	270.4	273.1	384.7	544.2	637.3	922.9	764.6	643.4	626.0	651.7	675.7	10.4
Gambie/Gambia	54.7	59.6	53.1	66.9	72.5	68.4	73.2	66.5	83.4	68.3	66.8	64.0	2.3
Ghana	2031.5	2223.6	2240.3	2364.8	2488.2	2210.9	2103.1	2192.3	2346.1	2161.9	2053.1	2100.0	0.3
Guinée/Guinea	611.8	640.8	644.3	654.6	693.5	705.1	733.1	702.2	724.7	721.2	767.5	792.8	2.6
Guinée-Bissau/Guinea-Bissau	59.1	56.5	60.3	60.7	63.9	66.1	66.7	62.4	65.2	66.4	63.4	65.2	1.0
Guinée Equatoriale/ Equatorial Guinea	74.0	67.1	62.9	51.3	62.5	44.0	29.1	26.6	24.4	22.1	19.9	20.3	-10.4
Haute-Volta/Upper Volta	289.9	293.0	296.2	278.6	302.2	304.9	304.7	295.2	304.5	319.4	326.0	345.2	1.7
Jamahiriya Arabe Libyenne Socialiste et Populaire/ Socialist People's Libyan Arab Jamahiriya	3666.8	3749.7	3830.9	4217.3	4645.8	4990.2	6121.5	6664.8	6844.0	7378.9	7429.3	6230.8	5.5
Kenya	1435.2	1514.9	1619.5	1722.3	1737.0	1808.4	1851.0	2011.0	2152.0	2241.6	2308.0	2419.5	4.9
Lesotho	59.4	63.8	67.2	84.7	89.8	82.4	96.0	113.0	130.3	121.7	121.1	125.3	7.5
Libéria/Liberia	380.0	405.4	422.3	441.0	464.5	447.3	461.3	465.8	475.1	491.0	483.0	488.1	2.3
Madagascar	782.7	794.1	784.4	791.3	814.6	825.3	810.0	837.8	866.4	899.0	891.7	861.0	0.9
Malawi	299.2	351.4	380.3	418.7	442.8	466.7	502.7	536.2	565.3	589.8	593.4	613.9	6.8
Mali	306.3	321.0	333.6	320.3	331.5	350.2	376.9	399.6	420.2	432.7	448.7	469.2	4.0
Maroc/Morocco	3355.0	3555.2	3618.6	3735.2	3952.4	4321.7	4800.9	5069.3	5552.2	5663.5	5883.6	5755.2	5.1

Tableau 2.1/Table 2.1

Produit intérieur brut, total (PIB) au coût des facteurs constants, 1970 (Suite)/
Total Gross Domestic Product (GDP) at constant factor cost, 1970 (Continued)

En millions de Dollars EC/In million US Dollars

Pays/Countries	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	Taux de croissance annuel moyen/Average annual growth rate
Maurice/Mauritius	164.2	174.1	198.2	225.1	235.6	230.5	274.7	298.3	309.2	320.2	266.2	330.1	6.6
Mauritanie/Mauritania	191.5	191.6	196.5	179.	197.0	212.0	219.0	206.6	193.6	200.0	212.2	230.1	1.9
Mozambique	1764.0	1883.9	1945.2	2055.6	232.8	1592.7	1516.3	1528.5	1540.8	1539.5	1569.6	1663.4	-0.6
Niger	381.7	383.2	392.2	533.4	371.3	363.1	423.9	452.3	489.6	512.4	535.5	542.3	3.6
Nigeria/Nigeria	10606.8	11477.0	11796.8	12639.0	13738.3	14078.3	15470.7	16607.9	15727.3	16460.9	16749.3	16 [illegible]	4.7
Ouganda/Uganda	1195.2	1230.4	1230.3	1256.2	1232.1	12 [illegible]	1200.3	121 [illegible]	12 [illegible]	1211.4	1216.0	1388.8	1.5
République centrafricaine/ Central African Republic	161.2	150.1	177.4	194.2	162.5	166.7	190.6	204.6	205.7	205.0	201.8	190.5	0.8
République Unie du Cameroun/ United Rep. of Cameroon	1026.2	1095.8	1169.1	1265.2	1295.6	1296.5	1381.6	1453.8	1491.1	1633.9	1694.5	1789.3	5.2
République Unie de Tanzanie/ United Rep. of Tanzania	1150.1	1198.4	1276.6	1319.6	1358.2	1432.8	1584.6	1624.6	1648.5	1693.4	1733.9	1678.6	3.4
Rwanda	204.7	213.7	221.9	228.3	268.7	315.6	339.2	366.7	373.2	387.5	399.3	409.1	6.7
Sao Tomé-et-Principe/ Sao Tome and Principe	12.9	13.4	14.1	13.2	11.5	10.0	10.2	11.0	11.1	11.4	11.8	12.0	-0.4
Sénégal/Senegal	766.3	758.3	810.3	768.3	799.9	861.3	918.7	918.9	857.7	940.0	879.7	888.0	1.2
Seychelles	17.3	17.9	20.7	21.7	21.0	21.0	23.3	24.6	25.9	27.7	29.2	31.1	5.6
Sierra Leone	379.6	379.6	390.3	403.7	413.3	406.6	417.3	418.1	435.0	451.1	407.7	408.4	1.9
Somalie/Somalia	219.6	239.9	245.4	254.7	256.4	263.4	276.9	284.9	292.0	298.9	302.5	303.1	3.2
Soudan/Sudan	1889.7	2021.6	1996.0	1964.3	2095.6	2176.9	2274.6	2330.8	2475.6	2547.4	2653.5	2751.3	3.2
Swaziland	103.2	108.4	118.0	126.8	136.1	145.5	155.9	165.2	175.6	188.3	201.3	214.3	6.9
Tchad/Chad	297.8	300.4	293.3	269.5	305.8	336.5	351.2	358.9	348.6	339.9	330.1	295.0	0.1
Togo	239.9	250.4	260.5	249.4	261.8	264.9	284.6	269.0	292.0	305.3	310.1	326.5	2.9
Tunisie/Tunisia	1250.1	1393.3	1654.3	1649.0	1821.9	1999.3	2105.9	2179.2	2364.0	2488.2	2664.3	2795.4	7.7
Zaïre/Zaire	1470.0	1575.6	1561.5	1699.6	1780.0	1753.8	1700.4	1695.8	1730.6	1719.8	1762.8	1813.0	2.0
Zambie/Zambia	1501.9	1714.8	1873.0	1863.2	1996.4	1910.3	1988.2	1901.0	1906.5	1773.6	1631.3	1801.2	1.9
Zimbabwe	1357.0	1528.6	1731.9	1689.0	1814.9	1817.7	1792.8	1656.6	1632.3	1657.2	1644.0	2068.1	4.1

Source: Listings de Comptabilité Nationale de la CEA (Tableau 3d, 30/12/82)/
ECA National Accounts Computer Printouts (Table 3d, 30/12/82)

Tableau 2.2/Table 2.2

Evolution de la contribution des industries manufacturières au Produit Intérieur Brut (PIB)
au coût des facteurs constants de 1970 (en valeur)
Trends in the contribution of manufacturing to the Gross Domestic Product (GDP)
at constant factor cost of 1970 (value)

En millions de Dollars EU
In million US Dollars

Pays/Countries	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	Taux d'accroissement annuel/ Annual growth rate
Algérie/Algeria	404.3	351.8	383.6	503.1	596.9	533.3	591.3	640.5	666.0	711.3	793.8	823.8	7.3
Angola	79.6	87.7	106.0	136.8	120.3	49.4	37.8	39.7	40.2	41.5	44.0	43.4	-1.3
Benin	18.7	19.8	20.5	20.4	26.8	13.9	17.8	16.5	16.7	17.2	17.2	16.3	0.6
Botswana	7.3	8.1	9.5	9.9	10.8	14.7	19.2	21.0	19.0	20.1	18.1	20.2	17.1
Burundi	15.4	16.0	16.6	17.1	19.1	18.9	21.1	21.8	22.3	23.8	23.7	24.6	4.2
Cap -Vert/Cape Verde	1.3	1.3	1.3	1.3	1.4	1.4	1.5	1.7	1.4	1.5	1.6	1.7	3.6
Comores/Comoros	1.8	1.9	2.1	2.0	2.1	2.1	1.3	1.3	1.3	1.3	1.4	1.5	-0.8
Congo	24.6	25.8	24.4	24.2	30.4	22.0	28.3	33.8	25.3	24.9	26.3	26.9	0.9
Côte d'Ivoire/Ivory Coast	135.9	148.6	164.3	174.6	189.5	186.9	213.8	231.1	241.3	276.7	281.2	276.5	6.8
Djibouti	4.0	4.8	5.2	5.0	6.0	6.3	6.1	6.0	5.8	6.5	6.9	7.1	5.7
Egypte/Egypt	1164.5	1168.7	1306.4	1321.1	1336.0	1424.3	1534.6	1593.8	1667.4	1786.3	1975.6	2110.2	6.4
Ethiopie/Ethiopia	168.0	174.8	183.6	181.8	179.2	176.8	178.0	176.0	208.8	218.3	224.8	234.0	3.2
Gabon	11.5	12.2	21.6	28.6	34.1	39.2	48.4	64.5	57.6	60.2	66.2	69.5	18.9
Gambie/Gambia	2.8	2.5	1.9	4.5	3.8	4.0	4.5	3.9	3.1	1.9	1.2	1.1	-8.8
Ghana	252.8	237.2	215.6	231.7	253.8	259.3	268.8	274.4	231.1	265.4	256.8	263.6	0.7
Guinée/Guinea	17.7	18.4	21.1	21.4	20.9	19.9	20.3	20.3	22.9	22.5	23.1	23.8	8.0
Guinée-Bissau/Guinea-Bissau	0.6	0.6	0.6	0.6	0.6	0.7	0.6	0.7	0.7	0.8	0.8	0.7	1.7
Guinée Equatoriale/Equatorial Guinea	2.8	2.7	2.6	2.7	2.7	2.5	1.7	1.6	1.1	0.9	0.8	0.9	-8.8
Haute-Volta/Upper Volta	31.5	30.6	41.8	40.5	48.3	44.5	43.4	40.0	41.9	46.4	47.5	50.4	4.8
Jamahiriya Arabe Libyenne Socialiste et Populaire/ Socialist People's Libyan Arab Jamahiriya	64.4	67.3	95.2	111.0	143.3	156.8	234.0	310.8	350.0	338.8	358.4	308.0	16.7
Kenya	174.0	196.6	211.0	241.5	255.8	257.4	254.6	295.0	332.2	355.8	375.9	394.6	7.9
Lesotho	1.6	1.0	3.3	4.8	5.0	4.6	5.4	5.0	5.2	6.0	6.1	6.2	24.3
Libéria/Liberia	15.2	17.3	17.8	22.1	28.1	26.1	26.0	26.0	27.6	28.2	26.8	27.4	6.0
Madagascar	90.1	86.8	87.7	95.3	102.6	100.5	99.6	101.7	104.7	109.0	106.7	90.7	0.3
Malawi	46.0	46.3	53.0	64.4	67.7	77.3	75.6	83.6	88.6	93.2	96.8	95.8	7.8

Tableau 2.2/Table 2.2.

Evolution de la contribution des industries manufacturières au Produit Intérieur Brut (PIB) au coût des facteurs const de 1970 (en valeur) (Suite)/
Trends in the contribution of manufacturing to the Gross Domestic Product (GDP) at constant factor cost of 1970 (value) (Continued)

En millions de Dollars EU/ In million US Dollars

Pays/Countries	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	Taux de cr. moyen an./An. av. growth rate
Mali	28.4	29.2	30.8	33.6	33.9	34.4	34.8	37.7	38.8	41.1	41.8	43.9	4.1
Maroc/Morocco	532.0	566.4	598.8	653.5	685.5	730.2	738.3	790.8	897.9	912.4	955.2	955.2	5.5
Maurice/Mauritius	26.3	29.2	36.0	38.9	42.3	44.8	54.4	59.8	61.0	63.7	58.0	64.4	8.8
Mauritanie/Mauritania	9.5	9.5	9.6	8.4	8.6	9.5	10.1	11.4	11.8	12.6	13.3	13.4	3.4
Mozambique	103.8	149.6	160.4	171.3	167.9	125.9	81.7	84.2	94.3	94.3	97.3	100.1	1.6
Niger	23.1	22.3	25.4	29.6	23.1	24.8	24.9	25.1	27.4	29.6	30.7	31.4	3.3
Nigéria/Nigeria	448.0	478.8	576.8	569.8	551.6	681.8	840.0	827.4	910.0	1008.0	1114.4	1177.4	9.6
Ouganda/Uganda	89.0	93.0	93.9	87.4	88.3	76.9	75.7	69.2	61.9	59.1	58.1	58.7	-3.6
République centrafricaine/ Central African Republic	23.7	23.8	23.3	24.5	24.6	23.3	23.9	27.6	28.7	28.9	28.1	25.6	0.9
République Unie du Cameroun/ United Republic of Cameroon	103.0	109.9	100.1	104.4	107.2	113.6	115.8	125.6	135.3	149.3	153.6	164.6	4.5
République Unie de Tanzanie/ United Republic of Tanzania	115.9	127.0	137.8	143.9	145.7	146.2	155.5	164.6	176.3	176.8	146.2	104.9	-0.2
Rwanda	7.1	7.5	7.9	8.1	34.0	36.0	38.7	40.8	44.5	47.8	48.8	49.7	33.9
Sao Tomé-et-Principe/ Sao Tome and Principe	0.6	0.6	0.7	0.8	0.7	0.6	0.6	0.6	0.6	0.6	0.6	0.7	1.9
Sénégal/Senegal	122.1	126.0	128.0	125.2	137.3	150.4	160.2	168.2	157.6	165.2	147.0	143.6	1.7
Seychelles	0.3	0.2	0.4	0.5	0.6	0.7	0.9	0.8	0.9	1.0	1.2	1.4	18.7
Sierra Leone	24.5	26.0	27.6	36.2	35.8	33.6	32.8	34.2	35.2	33.0	30.8	29.8	2.3
Somalie/Somalia	14.0	16.9	18.9	20.7	20.7	22.0	22.5	23.4	23.4	23.8	24.9	25.3	5.7
Soudan/Sudan	192.4	218.3	158.0	270.0	175.2	172.3	163.7	158.0	155.1	178.1	186.7	198.2	3.2
Swaziland	12.7	16.0	20.9	22.1	25.2	27.6	29.4	30.8	33.9	36.0	36.8	40.3	11.4
Tchad/Chad	16.4	19.5	18.4	18.7	20.3	21.8	21.5	21.8	20.3	18.7	16.5	13.0	-1.5
Togo	24.6	23.5	21.9	24.0	18.5	19.7	19.8	19.9	17.7	18.8	19.2	23.7	0.3
Tunisie/Tunisia	115.2	136.8	179.6	178.5	201.5	212.0	234.1	244.0	283.2	289.0	302.3	319.2	10.0
Zaïre/Zaire	111.0	122.2	122.8	133.8	154.6	134.2	123.6	121.0	115.6	109.0	107.8	106.6	0.0
Zambie/Zambia	98.0	189.6	212.7	218.4	239.7	196.3	168.0	158.9	150.8	173.2	181.2	178.9	8.5
Zimbabwe	289.1	298.8	399.8	363.8	384.6	388.7	368.0	347.2	348.6	383.2	430.2	473.1	5.1

Source: Listings de Comptabilité Nationale de la CEA (Tableau 3d, 30/12/82)
ECA National Accounts Computer Printouts (Table 3d, 30/12/82)

Tableau 2.3/Table 2.3

Nombre d'établissements dans le secteur des industries manufacturières (secteur moderne)/Number of manufacturing establishments (modern sector)

Nombre/Number

Pays/Countries	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	Taux de cr. moy ann./Annual av growth rate
Côte d'Ivoire/Ivory Coast	...	...	...	...	410	438	457	498	538	604	701	9.4
Egypte/Egypt	5138	4909	4812	5298	4733	4788	4888	4859*	4830*	4801*	4772*	-0.6
Ethiopie/Ethiopia	479	401	420	421	436	435	430	420	416	417	412	-1.11
Gambie/Gambia	...	...	...	...	...	27*	28	27	29	30*	31*	1.9
Ghana	347	364	362	370*	378*	386*	458	482	507*	533*	561*	5.1
Jamahiriya Arabe Libyenne Socialiste et Populaire/ Socialiste People's Libyan Arab Jamahiriya	202	206	219	230	249	272	271	285*	300*	315*	331*	5.1
Kenya	307	344	407	354	423	417	415	456	432	451	450	4.4
Madagascar	352	362	363	360	364	365	420	433*	446*	460*	474*	3.1
Malawi	127	136	139	130	115	115	103	108	109	105	103*	-1.9
Maurice/Mauritius 1/	3555	3616	3747	...	382	390	432	456	474	509	528	5.6
Nigéria/Nigeria	704	870	1057	1008	1057	1246	1269	1407*	1560*	1730*	1919*	10.9
République centrafricaine/ Central African Republic	...	51	...	39	37	36	33	31*	29*	27*	26*	-5.4
Rwanda	58	56	54	74	71	46	50	41	48	47	47	-0.4
Seychelles	...	...	...	...	...	28*	30	34	33	35	37	5.5
Somalie/Somalia	183	187	212	259	375	287	255	257	283*	311*	342*	10.0
Swaziland	29	33	37	39	43*	47*	47	44	47	57	61*	7.1
Tunisie/Tunisia	793	791	850	965	1151	1308	1380	1215	1295*	1380*	1471*	6.6
Zimbabwe	1161	1246	1286	1302	1323	1367*	1412	1459*	1507*	1557*	1608*	3.3

1/ Etablissements privés ayant 10 employés ou plus (1974-80) / Privately owned establishments with 10 or more employees (1974-

Source: Annuaire des statistiques industrielles de l'ONU (Tome I) et estimations de la Division de la Statistique de la C
United Nations Yearbook of Industrial Statistics (Volume I) and estimates by ECA Statistics Division.

Tableau 2.4/Table 2.4

Nombre moyen de personnes occupées dans les industries manufacturières (secteur moderne)/Average number of persons engaged in manufacturing (modern sector)

Milliers/Thousands

Pays/Countries	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	Taux de croissance moyen annuel/ Average annual growth rate
Côte d'Ivoire/ Ivory Coast[1]	33.1*	35.5*	38.1	41.0	43.2	49.4	54.3	58.7*	60.3*	63.5*	67.2*	7.4
Egypte/Egypt	607.9	634.2	651.3	694.5	711.9	737.5	760.2	789.1	819.1	850.2	882.5*	3.8
Ethiopie/Ethiopia	49.4	51.5	53.5	55.0	57.5	60.1*	59.4	62.8	66.1	76.8	80.8	5.1
Gambie/Gambia	...	...	...	...*	...*	2.4*	2.7	3.5	3.5*	1.7*	1.8*	0.0
Ghana	57.7	58.9	60.7	62.4*	64.0*	65.8	89.0	89.9	90.8	91.7	92.7	5.3
Jamahiriya Arabe Libyenne Socialiste et Populaire/ Socialist People's Libyan Arab Jamahiriya	7.3	8.1	8.8	9.0	10.7	12.6	14.1	15.7*	17.6*	19.6*	21.9*	11.7
Kenya	65.4	75.1	94.0	95.5	96.0	97.8	110.4	123.0*	122.1	120.8*	129.3*	7.3
Madagascar	36.2	37.0	37.3	41.5	46.2	42.3	41.8	42.9	44.1	45.3	46.5*	2.7
Malawi[1]	17.6	19.8	23.8	25.7*	25.9*	28.0*	27.0*	30.7	32.2	29.2	31.0*	6.1
Maurice/Mauritius	21.8	23.0	25.9	28.3	30.9	33.7*	36.8*	42.9*	44.1*	45.4*	46.7*	7.1
Nigéria/Nigeria	129.3	148.6	172.0	169.9	186.0	204.2	224.3	246.2	270.4	296.9	325.9	9.8
République centrafricaine/ Central African Republic[1]	9.2	9.0*	8.8*	7.5	5.7	6.7	4.6	5.9	5.8	5.6	5.5*	-2.6
Rwanda[1]	6.2	6.2	6.3	6.3	5.4	2.8*	3.9	3.7	5.4	4.6	4.6*	0.5
Seychelles	...	...	...	...	...	0.7	0.7	0.8	0.8*	0.9*	0.9*	6.7
Somalie/Somalia	5.6	6.2	5.3	6.7	9.5*	10.5*	10.5	11.0	12.2	13.6	15.2*	11.3
Swaziland	5.4	5.9	6.0	6.5	6.9	7.4	7.8	8.2	8.2*	12.7*	15.1*	11.7
Tunisie/Tunisia	55.6	53.7	58.4	65.9	70.1	77.8	84.0	101.7	111.0	121.3*	132.4*	9.2
Zimbabwe[1]	114.8	122.3	132.5	137.7	147.9	151.7	146.9	141.2	138.7	142.2	145.7	2.5

Source: Annuaire des Statistiques Industrielles de l'ONU (Tome I)/ United Nations Yearbook of Industrial Statistics (Volume I)

1/ Nombre moyen de salariés/Average number of employees

Tableau 2.5/Table 2.5

Valeur ajoutée des Industries Manufacturières (Secteur moderne)/
Value added in manufacturing (modern sector)

En milliers de Dollars EU/In Thousand US Dollars

Pays/Countries	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	Taux de gr.moyen an./An. av. growth rate
Côte d'Ivoire/Ivory Coast	190912*	226804*	269443*	320098*	380276	428728	459020	606640*	749529*	890440*	1057843*	18.8
Egypte/Egypt	695196	792735	894894	1122342	1508153	1498339	1767187	2072910	2431523	2852170	3345602*	17.3
Ethiopie/Ethiopia	104112	114844	135159	163733	183952	208358*	219487	230827	252239	353200*	405527*	14.9
Gambie/Gambia	...	...	...	...	...	3354*	3572	4598	3871*	4123*	4391*	6.5
Ghana	217630	246295	221848	226285*	230811*	235427	438095	440120	442321	444533	446756	9.8
Jamahiriya Arabe Libyenne Socialiste et Populaire/ Socialist People's Libyan Arab Jamahiriya	43489	50931	59969	72274	122121	166532	197601	256684*	333433*	433129	562835*	29.9
Kenya	134695	161550	210163	243945	299074	327551	386930	474723	551487	711398	782680	19.4
Madagascar	66882	68950	77757	106031	122178	135372	120874	134533	149135*	166655*	185681*	11.3
Malawi	23997	27638	31122	31077*	36741	42821	48174*	54190*	60971*	68592*	77166	12.9
Maurice/Mauritius	25056	28350	38590	43879*	84380	89801	96366	105844	129206	154549	177543	21.6
Nigéria/Nigeria	551954	621433	753213	882252	1089783	1006005	1200637	1383134	1593370	1835562	2114567	15.2
République Centrafricaine/ Central African Republic	14623*	14872	15125*	20362	25215	23039*	20725*	21077*	21435*	21799*	22170*	5.0
Rwanda	8510	5790	4245	6185	20790	32391	50465	71788	102519	104263	127514	44.4
Seychelles	...	..	...	...	...	...	...	...	... *	... *	... *	...
Somalie/Somalia	14015	15884	16842	17690	16193*	18786*	28205	38607	45170*	52849*	61833*	17.0
Swaziland	13513	13253	18138	31055	42048	56932	65651	57849	52619	81502*	90712*	23.8
Tunisie/Tunisia	126533	136593	182689	218062	286683	335765	389539	521981	623144	763975*	936633*	22.6
Zimbabwe	358833	410324	505334	689928	847071	922166	877796	854624	681423	993364	1119521	12.7

Sources: Annuaire des Statistiques Industrielles de l'ONU (Tome I)/United Nations Yearbook of Industrial Statistics (Volume I).

Tableau 2.6/Table 2.6

Valeur ajoutée estimée les industries manufacturières aux coûts des facteurs constants de 1970 (secteur moderne)/
Estimated value added in manufacturing at constant factor cost of 1970 (modern sector)

En milliers de Dollars EU/In thousand US Dollars

Pays/Countries	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	Taux de cr. moyen annuel/ Average an. growth rate
Côte d'Ivoire/Ivory Coa.	152359	179346	187490	198235	184556	203034	207480	223354	254165	298514	306768	7.5
Egypte/Egypte	680848	726159	871439	1107728	1413122	1475000	1738577	1968805	2228771	2503839	2521303	14.3
Ethiopie/Ethiopia	97466	106193	114544	113025	111033	120440	121354	122209	134136	174413	201434	8.1
Ghana	204547	204442	196425	206669	201984	157525	236028	282016	302273	259227	207926	
Jamahiriya Arabe Libyenne Socialiste et Populaire/Socialist People's Libyan Arab Jamahiriya	42143	47296	49456	48249	73723	96075	117594	148962	181198	192570	207065	18.2
Kenya	133089	155532	189410	198640	221664	236578	273461	308607	305125	345850	339542	10.1
Madagascar	58187	55289	60509	70635	78039	84262	60769	63711	69243	68774	67174	2.2
Malawi	22389	24865	32088	31854	35313	36502	34129	32998	32705	32678	31459	3.9
Maurice/Mauritius	21800	23989	29604	30507	35875	35891	40075	43801	50936	48169	52538	9.5
Nigeria/Nigeria	527156	571367	660308	674163	607662	599735	691293	737615	815526	898419	991062	6.8
République centrafricaine/Central African Republic	12908	12483	12294	16148	13880	14941	12135	11924	11519	10612	9576	-2.2
Somalie/Somalia	13524	14551	14231	16676	19105	20444	16685	18722	20276	20862	23089	6.0
Swaziland	12296	11446	14256	13052	16250	19277	24079	21131	20598	30239	33447	12.0
Tunisie/Tunisia	109588	116529	139284	143398	152397	170071	191436	235944	269064	289422	329676	11.8
Zimbabwe	335905	338282	463220	494068	538060	551885	507686	482198	459374	451201	459684	3.6

Source: Division de la Statistique de la CEA/
ECA Statistics Division

Tableau 2.7 /Table 2.7

Part des produits manufacturés dans les importations totales/
Share of manufactured goods in total imports

Pays/Countries	En valeur/Value En millions de Dollars EU/ In million US Dollars					En pourcentage/Percent					Taux de cr. moyen an./An.av. growth rate
	1976	1977	1978	1979	1980	1976	1977	1978	1979	1980	
Algérie/Algeria	4145	5555	7126	6890	7663	78.2	78.1	79.5	76.7	72.9	15.5
Burundi	38	61	65	120	181	55.9	64.8	67.1	67.1	64.8	50.5
Congo	123	139	165	220	268	73.7	76.0	74.2	65.3	74.2	21.7
Côte d'Ivoire/Ivory Coast	987	1272	1735	1699	2103	69.0	72.6	75.1	71.2	69.0	23.8
Egypte/Egypt	2323	3144	4470	2569	2895	58.8	66.4	67.0	67.0	58.8	11.9
Ethiopie/Ethiopia	265	279	399	396	462	74.9	72.7	66.8	66.8	72.7	16.1
Gabon	428	569	590	684	804	86.2	84.1	84.1	77.8	84.1	17.5
Ghana	562	681	990	315	313	65.2	59.6	59.6	63.4	63.4	-0.5
Jamahiriya Arabe Libyenne Socialiste et Populaire/ Socialist People's Libyan Arab Jamahiriya	2584	2946	3711	4289	5301	80.4	78.7	80.6	80.7	78.2	19.8
Kenya	618	884	1244	1121	1471	69.8	66.7	72.9	69.8	69.8	26.3
Liberia	280	318	307	323	273	58.2	58.2	47.9	47.9	58.2	-0.1
Madagascar	187	241	294	405	496	67.0	67.0	66.7	71.2	73.6	27.8
Malawi	152	178	274	306	329	74.7	76.7	72.4	72.4	74.7	22.6
Maroc/Morocco	1617	2059	1739	1992	2002	55.2	64.9	52.1	52.1	55.2	6.8
Mauritanie/Mauritania	124	143	125	179	206	58.0	58.0	58.0	58.0	58.0	15.3
Nigéria/Nigeria	6929	9254	10504	10573	12254	83.0	84.0	82.3	78.3	83.0	15.9
République Unie du Cameroun/Un. Rep. of Cameroon	454	565	800	972	1186	79.0	77.1	77.4	77.4	77.6	27.1
République Unie du Tanzanie/Un. Rep. of Tanzania	436	537	906	668	777	68.3	67.9	67.9	67.9	64.2	20.5
Sénégal/Senegal	366	467	442	534	504	54.3	54.3	54.3	54.3	53.5	9.4
Sierra Leone	102	117	139	185	226	60.4	60.4	60.4	60.4	60.6	22.2
Soudan/Sudan	741	743	665	718	901	70.6	70.6	75.7	78.4	70.6	5.8
Togo	147	206	241	366	499	70.4	70.4	70.7	70.4	70.4	36.3
Tunisie/Tunisia	1038	1257	1501	1765	2047	68.0	69.0	69.6	62.1	64.9	18.5
Zaire/Zaire	441	593	542	397	395	70.8	70.8	70.8	70.8	70.8	-0.4
Zambie/Zambia	490	508	455	583	624	77.1	77.1	77.1	77.1	77.1	7.1

Sources: 1. Annuaire Statistique du Commerce International de l'ONU (Tome I)/
United Nations Yearbook of International Trade Statistics (Volume I)

2. Publications Nationales/National Publications

3. Estimations de la CEA/ECA estimates

Tableau 2.8 /Table 2.8

Part des produits manufacturés dans les exportations totales/
Share of manufactured goods in total exports

Pays/Countries	En valeur/Value En millions de Dollars EU/ In million US Dollars					En pourcentage/Percent					Taux de cr. moyen an./Av. ov. growth rate
	1976	1977	1978	1979	1980	1976	1977	1978	1979	1980	
Algérie/Algeria	48	49	46	46	66	1.0	0.8	0.8	0.5	0.4	9.9
Burundi	1	1	1	-	1	0.9	1.1	2.1	-	2.1	0.0
Congo	23	29	32	32	36	12.9	15.9	15.4	7.6	14.7	12.2
Côte d'Ivoire/Ivory Coast	117	155	144	201	245	8.1	7.2	6.2	8.0	8.1	21.7
Egypte/Egypt	403	460	513	417	357	25.4	26.9	29.5	22.7	25.4	-1.9
Ethiopie/Ethiopia	1	2	2	1	1	1.8	1.8	2.4	3.3	2.4	12.5
Gabon	11	12	12	15	17	1.0	1.0	2.1	2.4	2.1	11.9
Ghana	104	105	35	33	25	13.8	15.7	10.5	10.5	10.5	-23.9
Jamahiriya Arabe Libyenne Socialiste et Populaire/ Socialist People's Libyan Arab Jamahiriya	-	7	28	69	-	0.0	0.1	0.3	0.4	0.0	...
Kenya	92	115	125	143	160	12.5	10.0	12.5	13.7	12.5	15.0
Libéria	4	4	6	5	11	1.1	0.4	1.1	1.1	1.1	30.3
Madagascar	21	23	27	29	34	7.3	8.0	6.8	7.6	6.3	4.3
Malawi	6	6	7	7	17	5.5	3.1	5.5	5.6	5.5	39.9
Maroc/Morocco	212	292	297	505	513	19.8	22.5	19.8	27.0	19.8	34.7
Mauritanie/Mauritania	7	9	9	9	10	1.3	1.3	1.3	1.2	1.3	9.9
Nigéria/Nigeria	44	38	45	97	135	0.6	0.3	0.5	0.4	0.6	39.9
République Unie du Cameroun/Un.Rep. of Cameroon	79	58	95	122	73	15.4	8.7	13.7	10.8	13.7	6.4
République Unie du Tanzanie/Un.Rep. of Tanzania	41	43	60	46	76	8.5	8.3	8.2	10.9	14.4	21.6
Sénégal/Senegal	75	71	60	80	59	15.3	1.7	15.3	15.3	14.1	-1.7
Sierra Leone	65	100	80	118	150	54.6	44.4	44.1	54.8	55.1	27.1
Soudan/Sudan	7	6	5	2	5	0.4	0.8	0.6	0.3	0.1	1.8
Togo	7	10	9	39	54	7.1	5.7	5.5	7.1	7.1	121.9
Tunisie/Tunisia	213	322	436	618	815	27.0	34.6	38.7	34.5	29.6	40.1
Zaïre/Zaire	676	657	509	968	1166	74.3	74.3	71.0	74.3	74.3	21.2
Zambie/Zambia	1011	869	824	1362	1572	97.2	96.8	96.9	97.2	97.2	15.4

Sources: 1. Annuaire Statistique du Commerce International de l'ONU (Tome I)/
United Nations Yearbook of International Trade Statistics (Volume I)
2. Publications Nationales/National Publications
3. Estimations de la CEA/ECA estimates

3. PRODUCTION AND PRODUCTIVITY OF MANUFACTURING INDUSTRIES

28. The data available 1/ indicate that, from 1970 to 1980, the volume of production of manufactured goods more than quadrupled in Nigeria and at least doubled in Kenya and Malawi. They also show quite a steep increase in the production of manufactured goods in Tunisia where the corresponding index (base 100 in 1970) was 189 in 1980. In Zaire, on the other hand, the production of manufactured goods remained below the 1970 level during the last three years of the period under review after experiencing a moderate growth rate between 1970 and 1974. Ghana recorded a drop of about 30 per cent in its production of manufactured goods from 1977 to 1980.

29. With respect to some key products of manufacturing in the region such as meat, raw sugar, beverages and cement, the volume of production increased quite steadily and substantially in most of the countries for which the relevant data were available such as Botswana, the United Republic of Cameroon, the Ivory Coast, the United Republic of Tanzania and so on. The production of raw sugar, beverages and cement went through a remarkable period of growth recording average annual rates that were sometimes higher than 40 per cent in Botswana, Cape Verde, the Ivory Coast, Kenya, Nigeria and Tunisia. There were, however, slight drops in the production of staple foods (between 0.7 per cent and 1.8 per cent on the average per year) in Ethiopia, Egypt, the Niger, Zambia and Zimbabwe; there was a considerable drop in staple food production averaging more than 10 per cent per year particularly in Algeria, Mozambique, Ghana and the Upper Volta.

30. Finally, if it is defined as the value added at constant 1970 factor cost per man/year, labour productivity in the manufacturing sector was characterized by its generally low level (between US$1000 and 2400 in most of the countries), and a negative or unsatisfactory average annual growth rate in most African States (between -4.1 and +1.5 per cent). The Libyan Arab Jamahiriya recorded the best results with a level of productivity increasing from US$5773 in 1970 to US$9455 in 1980 which represents an average annual growth rate of 5.5 per cent. In the Ivory Coast, where the annual average growth rate was almost nil (0.3 per cent) during the period under review, labour productivity in the manufacturing sector was constantly above US$4,000 except during the period 1976 to 1977 when it was between US$3,821 and 3,805. Another example worth mentioning is Egypt where productivity rose by a yearly average of 10.2 per cent which was the highest growth rate recorded in the region increasing from US$1,120 in 1970 to US$2,857 in 1980: an average productivity of US$2,044 for the whole period. In Ghana, Nigeria and Somalia on the other hand, the increase in the number of persons engaged in manufacturing kept pace with a rather considerable decline in productivity averaging -3.5 per cent.

31. The information available does not make it possible to draw conclusions regarding the causes of the levels or changes in productivity. Such causes could be the result of various factors such as the qualifications of workers or how hard they work, the increased use of capital goods and better quality raw materials, or the use of improved management methods.

32. Moreover, it is worth noting that according to a study carried out in 1971 by UNIDO 2/ the levels of labour productivity reached in 1963 in the manufacturing industries of the Ivory Coast and Zambia represented respectively 55.7 per cent and 39.8 per cent of the average productivity recorded in the industrialized countries. The UNIDO estimates mentioned a rate of 27.1 per cent with respect to Algeria as against 24.3 per cent for Tunisia and 21.6 per cent for Morocco.

1/ Only about 12 African countries calculate manufacturing production indexes.

2/ Industrial Development Survey, Volume III, 1971 (UNIDO)

33. In comparing data on productivity one should bear in mind the problems already mentioned in the first part of this study with respect to data coverage and quality, the selection of statistical units and the concepts used. Divergent methodologies and varying degrees of data reliability from one country to another could indeed cause major differences in the statistical series and have, consequently, a considerable impact on the comparability of data at the regional level.

Tableau 3.1/Table 3.1

Indices de la production des industries manufacturières (ensemble)/
Index numbers of manufacturing production (total)

1970 = 100

Pays/Countries	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
Algérie/Algeria	100	100	109	133	127	148	168	185	219	...	...
Egypte/Egypt	100	103	110	111	119	139	158	167	183	...	...
Ethiopie/Ethiopia	100	121	124	133	131	128	131	126	...	...	...
Ghana 1/	...	...	...	...	...	...	...	100	81	68	69
Kenya	100	111	117	134	141	141	168	194	220	235	245
Malawi	100	111	124	149	158	182	180	202	222	224	225
Maroc/Morocco 2/	...	...	83	92	94	100	106	114	121	121	126
Nigéria/Nigeria	100	115	124	153	147	182	234	238	273	404	404
Tunisie/Tunisia	100	111	120	126	134	139	143	154	166	180	189
Zaïre/Zaire	100	106	111	121	132	121	114	113	98	90	89
Zambie/Zambia	100	109	116	118	126	122	117	113	118	120	123
Zimbabwe	100	109	124	134	144	143	134	127	123	137	157

Sources: 1. Annuaire des Statistiques Industrielles de l'ONU (Tome I)/
United Nations Yearbook of Industrial Statistics (Volume I)

2. Publications nationales/National publications

1/ En ce qui concerne le Ghana, l'année de référence de l'indice est 1977/
The base year for Ghana is 1977

2/ En ce qui concerne le Maroc, l'année de référence de l'indice est 1975/
The base year for Morocco is 1975

Tableau 3.2/Table 3.2

Productions de certains produits caractéristiques des industries manufacturières dans la région (viande, sucre brut, boissons et ciment)/
Production of some characteristic commodities of manufacturing in the region (meat, raw sugar, beverages and cement)

En milliers de tonnes - in thousand tons

Pays/Countries	Viande (total)/Meat (total)					Sucre brut/Raw sugar				
	1977	1978	1979	1980	Taux de croissance moyen annuel/Average annual growth rate	1977	1978	1979	1980	Taux de croissance moyen annuel/Average annual growth rate
Algérie/Algeria	141	146	151	156	3.4	25	15	15	15	-13.3
Angola	78	79	79	81	1.3	50	50	50	50	0.0
Congo	9	9	9	9	0.0	16	10	24	20	28.6
Côte d'Ivoire/Ivory Coast	96	103	109	119	7.4	37	32	63	90	42.1
Egypte/Egypt	421	427	426	435	1.1	657	589	600	620	-1.7
Ethiopie/Ethiopia	490	501	505	511	1.4	137	161	167	163	6.3
Gabon	18	18	18	18	0.0	3	8	10	12	70.6
Ghana	98	105	114	126	8.7	25	20	15	20	-3.9
Guinée/Guinea	29	30	31	33	4.4	13	15	20	20	16.2
Haute Volta/Upper Volta	47	54	54	57	6.8	30	31	31	27	-3.2
Kenya	275	281	285	289	1.7	185	236	317	400	29.4
Madagascar	178	184	189	193	2.7	117	123	117	116	-0.2
Malawi	30	30	29	30	0.03	95	97	108	147	16.5
Mali	103	104	108	109	1.9	15	25	18	19	14.8
Maroc/Morocco	214	222	230	243	4.3	239	398	360	398	22.5
Maurice/Mauritius	6	6	8	7	6.9	618	623	646	444	-5.9
Mozambique	58	61	62	65	3.9	320	190	212	170	-16.3
Nigéria/Nigeria	602	659	721	787	9.4	53	51	35	35	-11.7
Ouganda/Uganda	146	148	148	152	1.4	12	8	10	15	13.9
Rép.U. du Cameroun/Un.Rep.of Cam.	93	96	96	101	2.8	35	37	57	42	11.2
Rep.U.de Tanzanie/Un.Rep.of Tanza.	189	196	199	209	3.4	108	136	123	122	5.2
Rwanda	23	24	24	25	2.8	1	1	2	2	33.3
Sénégal/Senegal	67	70	72	73	2.9	20	40	45	45	37.5
Somalie/Somalia	180	183	179	184	0.8	30	24	20	35	12.8
Soudan/Sudan	394	391	399	418	2.0	151	152	116	195	15.0
Swaziland	18	18	19	19	1.9	238	257	258	328	11.8
Tchad/Chad	51	51	51	51	0.0	15	20	24	30	34.3
Tunisie/Tunisia	97	91	80	93	-0.7	10	8	6	7	-9.4
Zaïre/Zaire	174	171	177	182	1.5	65	36	52	55	1.9
Zambie/Zambia	71	69	64	66	-2.3	70	59	58	79	6.3
Zimbabwe	175	186	175	165	-1.8	303	310	299	339	4.1

Sources: 1. Annuaire des Statistiques Industrielles de l'ONU (Tome II)/UN Yearbook of Industrial Statistics (Volume II)
2. Publications Nationales/National Publications

Tableau 3.2/Table 3.2
Production de certains produits caractéristiques des industries manufacturières dans la région (viande, sucre brut, boissons et ciment)/
Production of some characteristic commodities of manufacturing in the region (meat, raw sugar, beverages and cement)

Pays/Countries	Boissons (total)/Beverages (total) En milliers d'hectolitres/ In thousand hectolitres					Ciment/Cement En milliers de tonnes/ In thousand tons				
	1977	1978	1979	1980	Taux de croissance moyen annuel/Average annual growth rate	1977	1978	1979	1980	Taux de croissance moyen annuel/Average annual growth rate
Algérie/Algeria	4252	3774	4758	4949	6.3	1777	2697	3774	4159	34.0
Angola	...	...	...	...	...	300	400	400	400	11.1
Botswana	48	37	98	112	52.1	-	-	-	-	-
Burundi	573	603	622	813	13.0	-	-	-	-	-
Cap Vert/Cape Verde	1	1	1	1	0.0	4	15	15	15	91.7
Congo	570	681	652	613	3.1	45	63	55	34*	-3.6
Côte d'Ivoire/Ivory Coast	1562	1310	1544	2541	22.1	875	964	1030	1118*	8.5
Egypte/Egypt	...	...	...	...	...	3232	2422	2987	2994	13.2
Ethiopie/Ethiopia	974	1014	1000	1533	18.7	199	103	95	123	-8.8
Gabon	630	702	780	812	8.9	164	134	96	100	-14.2
Ghana	...	...	...	...	...	565	489	248	294	-14.8
Haute Volta/Upper Volta	424	519	626	764	21.7	-	-	-	-	-
Jamahiriya Arabe Libyenne Socialiste et Populaire/ Socialist People's Libyan Arab Jamahiriya	1263	823	925	834	-10.7	659	1079	1594	2482*	55.7
Kenya	4000	4307	4665	5056	8.2	113*	1156	1178	1228	2.6
Libéria/Liberia	244	260	308	341	11.9	10*	132	185	108	8.5
Madagascar	...	...	...	...	...	52	60	63	60	5.2
Malawi	479	553	591	603	8.1	94	108	113	92	0.3
Mali	47	53	66	75	17.0	35	34	26	26	-8.8
Maroc/Morocco	1279	1548	1490	1470	5.3	2604	2819	3317	3561	11.1
Maurice/Mauritius	803	836	761	698	-4.4	-	-	-	-	-
Mozambique	...	...	...	...	...	323	327	273	277	-4.6
Niger	91	105	130	157	20.0	40	41	38	39	-0.7
Nigéria/Nigeria	4833	6783	6584	13179	45.9	1262	1289	1655	1714	11.4
Ouganda/Uganda	...	...	...	...	...	73	4	13	5	23.0
République centrafricaine/ Central African Republic	275	277	253	319	6.0	-	-	-	-	-

Tableau 3.2/Table 3.2

Productions de certains produits caractéristiques des industries manufacturières dans la région (viande, sucre brut, boissons et ciment) (Suite/Production of some characteristic commodities of manufacturing in the region (meat, raw sugar, beverages and cement (Continued)

Pays/Countries	Boissons (total)/Beverages (total) En milliers d'hectolitres/ In thousand hectolitres					Ciment/Cement En milliers de tonnes/ In thousand tons				
	1977	1978	1979	1980	Taux de croissance moyen annuel/Average annual growth rate	1977	1978	1979	1980	Taux de croissance moyen annuel/Average annual growth rate
République Unie du Cameroun/ United Republic of Cameroon	2152	2745	2979	2409	5.7	278	403	148	227	11.7
République Unie du Tanzanie/ United Republic of Tanzania	...	...	...	...	...	246	250	299	306	7.8
Rwanda	425	498	377	393	-3.6	-	-	-	-	-
Sénégal/Senegal	645	660	742	587	-2.1	329	357	380	371	4.2
Seychelles	56	71	77	83	14.4	-	-	-	-	-
Sierra Leone	101	123	104	124	8.5	-	-	-	-	-
Soudan/Sudan	...	...	...	...	...	137	171	164	191	10.3
Togo	285	349	418	472	18.4	239	327	299	304	10.0
Tunisie/Tunisia	1914	1824	2234	2352	7.7	572	882	1383	1780	46.6
Zaïre/Zaire	...	...	...	...	...	548	475	454	399	-9.8
Zambie/Zambia	...	...	...	...	...	328	284	239	299	-4.1
Zimbabwe	925	950	950	963	1.4	486	404	391	469	-0.1

Sources: 1. Annuaire des Statistiques Industrielles de l'ONU (Tome II)/
United Nations Yearbook of Industrial Statistics (Volume II)

2. Publications nationales/National publications

Tableau 3.3/Table 3.3

Productivité du travail dans quelque pays Africains[1]/
(secteur manufacturier moderne)/
Labour productivity for selected African countries[1]/
(modern manufacturing sector)

Pays/Countries	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	Productivité moyenne/ Average productivity	Taux de cr. moyen annuel/ Average an. growth rate
Côte d'Ivoire/Ivory Coast	4603	5052	4921	4835	4272	4110	3821	3805	4215	4701	4565	4445	0.3
Egypte/Egypt	1120	1145	1338	1595	1985	2000	2287	2495	2721	2945	2857	2044	10.2
Ethiopie/Ethiopia	1973	2062	2141	2055	1931	2004	2043	1946	1878	2271	2493	2072	2.7
Ghana	3545	3471	3269	3312	3156	2394	2652	3137	3329	2816	2243	3029	-3.6
Jamahiriya Arabe Libyenne Socialiste et Populaire/ Socialist People's Libyan Arab Jamahiriya	5773	5839	5620	5361	6690	7625	8340	9488	10295	9825	9455	7683	5.5
Kenya	2035	2071	2015	2080	2309	2419	2477	2509	2499	2863	2662	2355	2.8
Madagascar	1607	1494	1622	1702	1689	1992	1454	1485	1570	1518	1445	1598	-0.4
Malawi	1272	1256	1348	1239	1363	1304	1264	1075	1016	1119	1015	1206	-3.4
Maurice/Mauritius	1000	1043	1143	1078	1161	1065	1089	1021	1155	1061	1125	1086	1.5
Nigéria/Nigeria	4077	3845	3839	3668	3267	2937	3082	2996	3016	3026	3041	3372	-2.7
République centrafricaine/ Central African Republic	1403	1387	1397	2153	2435	2230	2636	2021	1986	1895	1741	1935	3.9
Somalie/Somalia	2415	2347	2685	2489	2011	1947	1589	1702	1662	1534	1519	1991	-4.1
Swaziland	2277	1940	2376	2008	2355	2605	3087	2577	2512	2381	2215	2394	0.7
Tunisie/Tunisia	1971	2170	2385	2176	2174	2186	2279	2320	2424	2386	2490	2269	2.5
Zimbabwe	2926	2766	3496	3588	3638	3638	3456	3415	3312	3173	3155	3324	1.6

1/ Valeur ajoutée brute aux coûts des facteurs constants de 1970 par année-homme en dollars EU/
Gross value added at 1970 constant factor cost per man-year in US dollars

Source: Division de la Statistique de la CEA/ECA Statistics Division

4. Conclusions and recommendations

34. Since manufacturing industries account for more than a third of external trade and often contribute between 7 and 24 per cent of the domestic product, they undoubtedly play a key role in the development of the economies of African countries.

35. During the period under review, the modern manufacturing sector in a large majority of the countries of the region went through a boom which was characterized by a considerable growth in the number of establishments and persons engaged on the one hand, and, on the other hand, a substantial increase in the total volume of production. Production more than quadrupled in Nigeria and at least doubled in Kenya while average annual growth rates higher than 40 per cent were recorded in the production of some characteristic commodities of manufacturing in the region such as raw sugar, beverages and cement in Botswana, Cape Verde, the Ivory Coast and Tunisia.

36. However, the overall picture on the development of manufacturing industries in the region during the 1970s showed some inadequacies. The total volume of production in manufacturing industries dropped considerably in Ghana and Zaire (30 and 11 per cent respectively), and the same occurred in Algeria, Mozambique and the Upper Volta (an average annual decrease of more than 10 per cent) with respect to the production of some basic products including sugar, cement, fuel, oil, cigarettes and plywood. Moreover, the levels of productivity were generally low (between US$1,000 and 2,4000 in most cases) and annual average growth rates were negative or unsatisfactory in the majority of African States (between -4.1 and 1.5 per cent).

37. Moreover, the world distribution of value added in the manufacturing sector during the 1970-1980 period indicates a rather slow growth in Africa whose value added increased from 0.83 to 0.97 on the average as against 0.59 to 0.73 per cent for Western Asia, 2.18 to 3.14 per cent for Southern and Eastern Asia and 5.15 to 6.14 per cent for Latin America. Similarly, Africa's share in the world production of raw sugar slightly increased between 1970 and 1980 (3.7 to 4.2 per cent), while there was a clear drop in its share of world cement production (1 to 0.7 per cent) and its share of world cigarette production was almost stagnant (1.2 to 1.1 per cent).

38. With respect to methodological problems, it should be stressed that the study was greatly hampered by the generally bad quality of data, the complete lack of information on small and medium scale industries and the occasionally divergent concepts and definitions used by the countries. In most cases, it was not possible to have an accurate idea of the share of the modern sector in national economies. Nor was it possible to obtain the slightest data on the characteristics of enterprises and establishments, especially their sizes, the extent of integration of their technical operations and plant capacity, their system of ownership, legal organization and product distribution methods. What is more, the sectoral deflators available were unreliable and they had to be adjusted as much as possible in order to prepare the series on outputs at constant prices.

39. In order to correct this situation, the countries of the region are urged to participate in the 1983 world programme of industrial statistics which is no doubt an effective means of obtaining a detailed and comprehensive picture of the structure and activities of the industrial sector as a whole and gradually to establish integrated national systems of industrial statistics. If African countries are unable to participate in the above programme, they should at least give priority to carrying out economic census programmes while continuing with the organization of annual surveys.

40. The development of productivity statistics will depend to a large extent on the improvement of national labour statistics. Inasmuch as preference should be given to estimating value added at constant factor cost because it is more meaningful and easier to compare at the international level, emphasis should be placed on looking for comprehensive and reliable data on the value of goods and services produced, intermediate consumption and indirect taxes less subsidies. With respect to employment, statistical surveys should not be restricted to the number of persons engaged but should cover the number of days worked and the distribution of workers by social and professional categories. At the same time, efforts should be made to design sectoral defiators and appropriate conversion rates of purchasing power for each of the major aggregate levels.

41. Finally, in order to present data that can be compared to the various levels of aggregation, it is recommended that countries should use the revised version of the International Standard Industrial Classification of all economic activities (ISIC).

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DEMOGRAPHIC DATA COLLECTION AND ANALYSIS IN THE AFRICA REGION

A Report on Activities

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INTRODUCTION

1. The main sources of demographic data are population censuses demographic sample surveys and civil registration systems. This paper is intended to give an account of the activities in those three fields in the African region since the second session of the Joint Conference of African Planners, Statisticians and Demographers.

2. The focus of the discussion on the activities in population censuses will be the progress of African censuses during the period of the 1980 World Population and Housing Censuses Programme. In general, the Programme covers censuses conducted or expected to be conducted during the period 1975 to 1984. It may be recalled that at the last Joint Conference, it was reported that the 1980 round of censuses had already started and a number of countries had completed their census field operations. Some of those countries had then started publishing their census results and others were at the data processing stage of their census programmes. This paper will therefore deal mainly with developments since the last progress report on African censuses presented to the Joint Conference was prepared. The areas of discussion will include topics investigated in the censuses, census evaluation programmes, status of programmes for publication and dissemination of census results, problems encountered in the implementation of census programmes and the level of technical assistances which has been provided.

3. The developments in the field of civil registration and vital statistics systems have rather been on a low key but an account of the activities in that area of demographic data collection since the last Joint Conference will also be covered.

4. There will also be a brief statement on the status of demographic sample surveys during the period under consideration. The statement, however, will not cover survey activities in countries which have been enrolled in the African Household Survey Capability Programme (AHSCP) since such activities have been discussed in the progress report on that programme (ST/ECA/PSD.3/4).

PROGRESS OF 1980 ROUND OF POPULATION AND HOUSING CENSUS PROGRAMMES

5. A population and housing census consists of three major phases, namely, pre-enumeration, enumeration and post-enumeration activities. At the time of the last Joint Conferences 20 countries (3 in North Africa, 3 in West Africa, 3 in Central Africa and 11 in Eastern and Southern Africa) had completed at least the enumeration phase of their census programmes in the 1980 round of censuses. Also 12 other countries had then conducted their censuses as part of the African Census Programme (ACP) during the period 1975 to 1979.

6. It may be recalled that the ACP was instituted to assist some African countries to carry out their censuses in the 1970 World Programmes of Population and Housing Censuses. However, as indicated above, 12 of the 22 countries enrolled in the ACP could not conduct their census enumeration during the period of the 1970 round of censuses because of various constraints which delyed the completion of their census pre-enumeration activities. The censuses of those countries were therefore conducted during the period of the 1980 round.

7. It was reported at the last Joint Conference that 16 countries were expected to conduct their population censuses during the period 1982 to 1984. At the time of writing this report 6 of the 16 countries had completed their census enumeration and 9 other were expected to conduct theirs by the end of December 1984. The first group of countries are: Djibouti, Gambia, Guinea, Morocco, Sudan and Zimbabwe. The second group comprises: Angola, Congo, Equatorial Guinea, Ethiopia, Ghana, Liberia, Libya Arab Jamahiriya, Mauritius and Zaire. The remaining country, Sierra Leone, has postponed its census enumeration year from 1984 to 1985. It is therefore expected that by the end of 1985, with the exception of Nigeria and Chad all the 50 member States of ECA would have conducted censuses during the period of the 1980 World Population and Housing Census Programme. Nigeria conducted its last population census in 1973 but the results were subsequently cancelled by the Government and there is no information at ECA on plans for the next population census. In the case of Chad, the political situation has prevented it from conducteng a population census though it was one of the 22 ACP countries.

8. A census programme cannot be considered as complete until the results of the census have been processed and the resultant statistical tables and their analysis, interpretation and implications together with an account of the entire census experience published or otherwise made available to potential users in a manner suited to their needs. Thus the censuses which have been conducted in the African region in the 1980 round are in various stages of completion.

9. Annex I provides a summary of the status of African censuses during the period of the 1980 World Population and Housing Census Programme. The summary gives information on censuses at the preparatory activities stage as well as the position regarding the post-enumeration phase of censuses which have gone beyond the enumeration phase. It is clear from the information in the Annex that of the 38 census programmes with the enumeration phase completed by end of June 1983, the results of 25 have been either partially or fully published. Censuses in 11 countries are at various stages of data processing and of the two remaining censuses the results of one have been rejected by the Government concerned and loss of census questionnaires has rendered the other unrepresentative of the country. Plans have, however, been initiated for the processing of the available completed questionnaires to provide data for specific districts.

10. Data analysis and interpretation seem to be the weakest link in census programmes in the African region. In almost all cases except where census results have been cancelled or only partially accepted by Governments, census statistical tables have been published after a census enumeration has been conducted and the information processed. Census data analysis, however, have been either ignored altogether by the census organizers with the hope that individual researchers may take it up or only considered several years after the publication of the basic statistical tables. In a number of cases, analyses have been done under technical assistance projects by expatriate personnel with only minimal local personnel involvement, if at all. In a few instances however, census data analyses have been undertaken by local personnel with technical guidance and assistance of international experts.

11. It cannot be overemphasised that if the full potential usefulness of censuses are to be realized, then census data analysis needs to be considered as integral part of a census programme. Indeed a minimum programme of analysis should be prepared by the cenus organizers as part of the census preparatory activities. The programme should focus on the immediate needs of government for information required for decision-making, planning and administration. In view of the manpower constraints in many census offices in the African region, the planning and execution of the programme of analysis should be a co-operative effort involving not only the professional staff of census offices but also specialists from other relevant sections of statistical departments and other government agencies including the universities. Some countries have adopted that strategy but others are yet to explore it.

12. Another aspect of census programmes which deserve more considerations than is being given at the moment is the dissemination and effective use of census results. The efforts of census organizers should not end with the publication of the statistical tables nor even with the issue of the analytical report and abstracts of the census results. It is necessary that the census offices/statistical organizations take steps to promote the use of the results as widely as possible and also obtain feed-back as to whether the census is fulfilling its prime purpose of providing the data required for governmental decision-making and development planning programmes. Further the census organizers need to find out whether the census results are being presented in a manner suited to the needs of users.

13. In a number of countries the publication of the major census volumes has been followed with seminars/workshops which have brought the census organizers and the major data users such as planners and research workers together to engage in fruitful dialogues. The principal objectives of the seminars/workshops were to publicize the census results and ensure effective utilization of the census data. The seminars also provide data producers the opportunity to obtain the reaction of users to the form of census data presentation

TOPICS INVESTIGATED IN POPULATION AND HOUSING CENSUSES

14. As indicated in the progress report on censuses, demographic surveys and civil registration at the second session of the Joint Conference, the Working Group on Recommendations for the 1980 Population and Housing Censuses in Africa recommended a number of topics to be investigated in censuses in the African region. Those recommendations together with the global recommendations in the UN Principles and Recommendations for Population and Housing Censuses provided guidelines for the determination of topics investigated in censuses which have been conducted in many African countries during the period of the 1980 round of censuses.

15. The topics recommended by the Working Group are the following:-

Geographic characteristics

Place where found at time of census
Place of usual residence
Place of birth
Duration of residence
Place of work

Demographic and social characteristics

Age
Sex
Relationship to head of household
Nationality
Survival of parents
School attendance
Educational attainment
Literacy
Marital status
Number of children born alive
Children living
Births during last 12 months
Deaths during last 12 months

Economic characteristics

Type of activity
Occupation
Industry
Employment status

Housing conditions

Number of houses
Type of housing unit
Type of occupancy
Material/of wall/roof/floor
Source of water supply/light/fuel
Type of toilet
Bathing facilities
Number of rooms

From 1975 to end of June 1983, 38 African countries completed the census enumeration of their population census programmes. A review of the topics investigated in the censuses of those countries shows that 20 of them enquired into the following geographic items which are on the list of items recommended by the Working Group; place where found at time of census, place of usual residence and place of birth. Of the remaining two recommended topics on geographic characteristics 14 countries enquired into"duration of residence" and only 3 countries had "place of work" as questionnaire item in their censuses.

16. With respect to the topics on demographic and social characteristics, the question on survival of parents was the least popular. It was asked in the census of only 9 countries. The question on deaths during last twelve months was a questionnaire item in the censuses of 12 countries and the remaining recommended topics on demographic and social characteristics were investigated by 20 or more countries.

17. Most of the countries enquired into one or more of the recommended economic items. In fact only four countries - Kenya, Madagascar, Somalia and Uganda - did not investigate any of the economic topics in their latest censuses. A comparison of questionnaire items investigated by African countries in the 1970 round of censuses with those investigated in the 1980 round shows that some countries which, did not ask economic questions in the 1970 round, have enquired into one or more such items in the 1980 round. This is a positive development since data on economic characteristics of the population are often not available from other sources. If even data on economic characteristics are available from sample enquires, the opportunity to obtain cross-classification of economic and other socio-demographic data on a small area basis through a census should not be missed, particularly since an increasing number of countries in the region have embarked on decentralization programmes. Such programmes need small area statistics for plan formulation at sub-national or locality level.

18. It must be mentioned, however, that some amount of research still have to be undertaken to overcome the problems relating to definitions, concepts and classifications of economic items. In some countries, there has been the tendency to classify only females as "home-makers". In other countries, occupation was pre-coded on the census questionnaire thus limiting the number of occupational categories. Further, the distinction between current and usual activity status as well as the principle that participation in an economic activity should take precedence over non-economic activity do not seem to have received adequate treatment in census training programmes. Also hasty training programmes have not provided sufficient time to deal with enumerators problems relating to the concepts of 'industry'. Thus enumerators often fail to distinguish between 'occupation' and 'industry' during enumeration. Observation of field interviews has revealed that part of the difficulty arises from the fact that enumerators do not faithfully apply the instructions in the Enumerator's Manual neither do they read out the exact wording of the question relating to industry on the questionnaire when interviewing respondants.

19. Housing questions were asked by most of the countries in their censuses. Some countries had population and housing questions on the same questionnaire though in some instances the housing questions were asked only in urban areas. In a few other countries the housing census preceded the population census in a two-phased census enumeration programme.

20. Apart from the recommended topics, the Working Group on Recommendations for the 1980 round of censuses in Africa also endorsed a number of other topics as useful for investigation in censuses. The list of "other useful topics" include community level variables. These are: source of water supply, availability of electricity, availability of primary school and distance from nearest hospital/clinic/health centre. The information available at ECA indicates that only very few countries have attempted to collect information on community or locality level variables during their census field operations.

CENSUS EVALUATION PROGRAMMES

21. It is stated in the UN Principles and Recommendations for Population and Housing Censuses that "good census practice requires a careful consideration and evaluation

of the completeness and accuracy of the census results". It has also been indicated that the purpose of census evaluation is "first to provide users with some basic measures of the quality of the census data and hence some indication of the confidence with which the census results can be used for different purpose and, secondly, to provide census authorities with the information needed to plan and carry out improved censuses and surveys in the future".

22. In line with the above statement, the Working Group on Recommendations for the 1980 Population and Housing Censuses in Africa urged that "a post-enumeration survey for census coverage evaluation should be planned, organized and executed as an integral part of a population census and that content errors be evaluated by other methods such as demographic analyses".

23. In spite of the above recommendation and the recognition of the value of post-enumeration survey as a powerful tool for census coverage evaluation by many census organizers in the African region, it has not been widely used in African census programmes in the 1980 round. Even in the countries where post-enumeration census coverage checks have been carried out, the results have not been particularly encouraging for a variety of reasons.

24. The countries which have conducted post-enumeration surveys to evaluate their censuses during the period of the 1980 census programme include the following: Algeria, Botswana, Cameroon, Guinea-Bissau, Ivory Coast, Niger, Senegal, Upper Volta and Zambia. Five of the countries -- Cameroon, Ivory Coast, Niger, Senegal and Upper Volta -- carried out their census and post-enumeration survey programmes under the African Census Programme. It is therefore pertinent to point out that though the post-enumeration survey programmes of those five countries were conducted during the period of the 1980 round of censuses they were originally planned as part of the 1970 round. Thus at the time of writing this report, the information available at ECA indicates that, in effect, only four of the 26 countries which had completed their census field operations as part of the 1980 round of census have conducted post-enumeration surveys to evaluate their censuses. The results of those surveys have not been published.

25. The unsatisfactory experience of the few African countries which have conducted post-enumeration surveys in the 1960 and 1970 rounds of censuses together with cost constraint has tended to discourage several countries in the region from attempting post-enumeration surveys as part of their census evaluation programmes.

26. It has been reported in the Study on Methods and Problems of the 1970 round of African Population and Housing Censuses (E/CN.14/CAS.10/15) that some of the factors for the failure of PES programmes during the 1970 round of censuses were:

(a) movement of the population during the interval between the census and the PES
(b) unrecognizable boundaries of the sample areas
(c) a person often being known by different names
(d) same name being used by a large number of persons in an area
(e) general fatigue of the enumerators

27. The above factors still constitute major hurdles for the implementation of PES programmes but their effects could be minimized with careful planning and testing. In fact the failure of census organizers to foresee the effect of the above factors and to take appropriate measures to contain them may be attributed to the fact that PES had in many cases not been conceived and planned at the outset as an integral part of the overall census programme. In general, the PES had been considered as a separate exercise to be undertaken after the census and it was only discussed in passing, if at all, during the census preparatory activities. Often the decision to carry out a PES was taken very late. Thus its scope and objectives were considered only at the tail end of the census preparatory activities and no attempts were made to test the proposed PES programme in the pilot census which should properly be seen to be a full-dress rehearsal of the entire census programme. It is therefore not entirely surprising that administrative, financial and technical issues have jointly constituted seemingly unsurmountable problems in the implementation of PES programmes to evaluate coverage error in censuses in the African region.

28. The other methods for census evaluation include checks with independent record sources (e.g. civil registration records), other independent sample surveys, internal consistency checks and demographic analysis. However, reliable data from other sources are not always available and census analyses in the region have been rather meagre. The net result is that, in several instances the publication of census results does not include an account of the relative accuracy of the census data.

29. Since it is now generally accepted that figures of censuses, however carefully conducted, may not be absolutely accurate the recommendation that census evaluation be considered as an integral part of a census programme cannot be over-emphasized. Also, with the paucity of reliable data from other sources for census evaluation and considering that a well planned and executed post-enumeration survey is a very powerful method for evaluating census coverage error, it is recommended that despite the discouraging past experience African countries should include post-enumeration surveys for the evaluation of census data in their census programmes, if even on a limited scale.

PUBLICATION AND DISSEMINATION OF CENSUS RESULTS

30. As stated earlier, a census cannot be regarded as complete until the information collected is made available to potential users in a form suitable to their needs. In general, the census information required by most people is released in published form while data likely to be required by only few users are supplied in unpublished form. Provision is also made for the tabulation of some data only when required. Such tabulations may be produced at the expense of the requester.

31. The Working Group on Recommendations for the 1980 Population and Housing Censuses in Africa recommended that census publications should include volume(s) containing statistical tables as well as analytical and administrative reports. It was further stressed that efforts should be made to reduce to a minimum the time lag between the collection of the information and the publication of the results. The suggestions made to ensure timely publication of census results include the use of computer print-outs for offset printing of the census statistical tables.

32. It has also been recommended that census publications should include abstracts for the non-technical reader and that such abstracts should be widely distributed to policy-makers, planners and administrators. The exchange of publications between statistical offices in the region has also been stressed.

33. As stated earlier in the section on the progress of the 1980 round of censuses in the African region, census authorities have endeavoured to publish census volumes containing statistical tables after the collection and processing of census information. However, the long time-lag between the collection of the information and the publication of the detailed statistical tables is still a problem. An increasing number of countries are also including administrative and analytical reports in the census publication programmes. Some of the census administrative reports, however, do not provide full account of all the important issues in census operations. In particular, information on census costs in the African region is rather sketchy.

34. With respect to dissemination of census results, the seminars and workshops involving data producers and users which some countries have organized after the publication of the main statistical tables are likely to achieve the desired objective. However, the recommendation that abstracts of the census results for the non-technical general reader should also be published has not been taken up. There is also virtually no exchange of publications between statistical offices in the region. On the whole, therefore, there is considerable room for improvement in the area of dissemination of results in African census programmes.

35. The main purpose of a population and housing census as well as other socio-demographic data collection programmes is to provide essential information needed by decision-makers, planners and administrators. If the data collected will achieve the principal purpose then there is the need for continuous dialogue between the data producers and users during the determination of both the topics to be investigated and the details and manner of presentation of the results.

36. The desirability of data users conference at the preparatory phase of census programmes and the organization of seminars and workshops to coincide with the release of the results of major data collection programmes such as censuses have therefore been stressed.

37. A number of countries in the region have distributed the topics to be investigated in their censuses to potential census users for their comments which have been taken into consideration in the final revision of the list of topics. A few others have followed or plan to follow up the distribution of the topics with a conference involving the statistical organization and the users to discuss the topics and the relevant comments. Unfortunately, often the proposed tabulations are not discussed at such conferences nor are they circulated with the list of topics. It is suggested that in order to maximize the usefulness of the data users conferences, both the topics and proposed tabulations need to be discussed. This would ensure that not only would the most relevant topics be investigated but that tabulations with the appropriate specifications which would satisfy the immediate needs of policy-makers, planners and administrators would be produced on a priority basis.

38. Another development in the region which has the potential for the improvement in the utilization of census results is the establishment of population planning sections in Government Economic Planning and Development Ministries. The development may ensure adequate integration of socio-demographic variables in plan formulation and thus assure effective use of census results.

PROBLEMS IN PLANNING AND IMPLEMENTING CENSUS PROGRAMMES

(a) General problems

39. At the last Joint Conference, some of the problems which were having adverse effect on census programmes in the African region were discussed. The problems included the following: insufficient time for census preparatory activities resulting in omission of some necessary pre-tests; non-adherence to census time-tables; inadequate census education/communication programmes; late acquisition of project inputs; inadequate office facilities and ineffective leadership on the part of census organizers.

40. An evaluation of census operations since the above discussion on census problems were held at the second session of the Joint Conference shows that, in general, the problems highlighted at that time still continue to impede progress of census programmes in the region though there has been significant improvement in the field of census education and communication in some countries. The unsatisfactory progress in implementing census programmes in several African countries may be due partly to the ad hoc nature of the machinery for censuses in the region.

41. The lack of permanent offices or even sections within central statistical organizations for censuses does not assure continuity in census work nor does it assure the timely formulation of census programmes and the early initiation of preparatory activities. In some countries the ad hoc census offices which are set up to implement census programmes are disbanded soon after census enumeration with the result that post-enumeration activities are unduly delayed, if at all completed. In fact, in at least one country in the region, the main statistical tables of the census undertaken during the 1970 round of censuses had not been published at the time this report was being written. The main reason for the long delay in publishing the statistical tables has been attributed to the fact that the statistical office which was supposed to carry on the activities of the census office did not have the personnel to continue the census work after the dissolution of the census office.

42. Another issue which has adversely affected the implementation of census programmes is the failure of some census organizers to appreciate fully the multiple purposes which project documents are intended to serve for various types of users. In fact, a review of the implementation of census programmes in the region reveals that in several instances some countries look on the census project document solely as a request to UNFPA or other donor agency for funding. Thus, the use of the document as an implementing guide is often overlooked or played down. Census organizational structure, staff requirements and work plan in project documents are, therefore, often different from what one finds on the ground at the project

implementation stage. It is therefore not surprising that some census programmes develop bottlenecks at critical stages and their completion unduly delayed.

43. Some political situations have also adversely affected the timely and successful completion of census programmes during the period under consideration. For instance, in Ghana the political situation since 1979 has accentuated other administrative problems to cause the postponment of the country's population census enumeration in the 1980 round of censuses twice. In the case of Chad, political disturbances have prevented the country from carrying out its first ever population census though it was one of the countries in the African Census Programme.

44. Financial constraints have also affected census programmes. As a result of the reduced level of financial assistance from external sources for population data collection, a number of African countries have had to bear higher proportion of the cost of their census programmes, in particular the payment of the salaries and honoraria of the large number of temporary field staff required for census enumeration. Most of the countries in the region, however, have financial problems hence Government inputs for census programmes either have not been forthcoming or their delivery have been delayed, often during critical stages of census programmes. Censuses in some countries, therefore, have had to be postponed and in others considerable delays have occured at the data processing and publication stages.

45. The poor state of the financial situation of a number of countries has also resulted in the tendency for governments to wait for full information on assistance requested from UNFPA or other donor agency before active preparations for censuses are initiated. If the information required is delayed then the census is either postponed or the preparatory activities rushed.

46. A related problem is the reduction in the level of external assistance during the implementation of a census programme though a country had been given grounds to expect a higher level of support at the start of the project. This situation has caused delays in the processing of census information in at least two countries in the region.

47. An appraisal of the general problems which have had adverse effect on African censuses in the 1980 round of censuses clearly shows that in the absence of well-established statistical organizations and a reasonably long history of census taking. African census programmes will have to be considered as national exercises which require the co-operative effort of several government agencies for their implementation. If such co-operative effort will become a reality then heads of census offices or statistical organizations need to provide effective leadership and African Governments have to demonstrate the political commitment for censuses by according census programmes the necessary effective priority status.

(b) Problems in connection with cartographic preparations

48. At the last Joint Conference, it was reported that the major problems relating to census mapping included the following: the casual approach and the slow pace of census cartographic preparations; lack of permanent cartographic units at census offices/statistical departments, reluctance of local staff to do field work owing to

low level of field allowances and the late arrival of vehicles and materials ordered for cartographic work. There has not been any appreciable improvement since the report on the 1980 round of African censuses presented to the last Joint Conference was prepared. In fact, in addition to the problems stated above, other problems have been encountered.

49. One major problem has been the late start of census preparatory activities including project formulation and its submission to donor agency or government for financial and technical assistance. As a result of the late start, sufficient time has often not been allowed for the cartographic preparations. Thus cartographic work is rushed and invariably the enumeration area maps which are prepared are not tested before the census enumeration. Problems of boundary identification and control of coverage are therefore encountered during the enumeration.

50. Non-availability of suitable base maps has also added to the difficulties of census mapping in the region. The situation in this regard is made worse by the fact that cartographic units of census offices have often not been thorough in their preparation of the inventory of the available maps and the acquisition of such maps. It must, however, be pointed out that in some instances it has been very difficult for census offices to acquire some maps because of security reasons.

51. A related problem is the lack of effective collaboration between census cartographic units and other relevant government departments. This situation has prevented the maximization of the use of the available maps and other facilities including local expertise.

52. Changes in administrative boundaries while census mapping is already in progress and administrative units without adequate boundary descriptions have also created problems in census cartographic preparations. In some instances, the boundary descriptions provided by the concerned governmental authority are different from what is found in the field.

53. Other issues which have adversely affected census mapping are: inadequate provision for final printing of census maps; lack of proper training for cartographic field staff and inadequate training programmes at some overseas institutions.

54. In a few instances also, experts assigned to countries have not been effective either because of the relatively short duration of their contracts or because they have attempted map work of higher precision than necessary for census purposes.

(e) Problems relating to data processing

55. Machine processing of census results still continue to be one of the most serious bottlenecks in census programmes. Though assistance is being given in this field through advisory missions, training of local personnel and the provision of hardware not much headway has been made in solving the problems which were reported at the last Joint Conference. The problems which were discussed then included: lack of material resources and experienced professionals; lack of effective communication between statisticians (or subject-matter specialists) and data processing personnel;

bottleneck at the editing stage due mainly to a combination of human and hardware limitations and the lack of appropriate software for tabulation as well as the inefficiency of processing personnel.

56. In addition to the above problems financial constraints have resulted in the substitution of United Nations Volunteers (in data processing) for posts of data processing experts. Unfortunately not only do such persons generally need to work under experienced experts but also it is becoming difficult to recruit them. In two countries, though the census field operations had been completed at the time this report was being written, it had still not been possible to recruit the UN Volunteers.

57. In a number of cases, also there have been considerable delays in the delivery of equipment which have already been approved in project documents. Some countries have had to wait for one to two years for the delivery of data entry equipment for the processing of their census returns.

CIVIL REGISTRATION

58. African countries are being encouraged to institute or improve on their births/deaths registration and vital statistics systems to obtain data to supplement results of censuses and demographic sample surveys. This is to ensure the availability of socio-economic and demographic data during intercensal periods and also on a continuing basis.

59. At the last Joint Conference an account of the status of the civil registration system in each member country was presented. The report showed that births and deaths registration systems in 5 countries could be classified as satisfactory since the coverage at the national level was around 90 per cent. In one other country only the registration of births could be considered as satisfactory. Of the remaining 44 countries, 11 had instituted projects for the improvement and expansion of births and deaths registration systems and 15 had initiated discussions or drafted project documents in respect of civil registration and vital statistics systems.

60. Financial, technical and managerial problems as discussed during the last Joint Conference have impeded progress in this field but a few countries have had satisfactory results with the experimental phase of their registration programmes. Technical assistance has been provided to countries with on going projects and a few others have been assisted to formulate plans for the improvement and expansion of existing registration systems. Discussions have also been initiated in 3 countries with a view to encouraging them to institute plans for efficient registration systems. In view of the decreasing financial assistance from external sources, however, formulation of project requests have been on a low key.

61. It is, however, suggested that countries with poor registration systems should take steps to improve the systems on a modest scale after the completion of their population censuses in the 1980 round. The RAGDS could be requested to provide technical assistance at the appropriate time.

DEMOGRAPHIC SURVEYS

62. During the period under review the activities in the area of demographic data collection in the African region has been mainly in the planning or the implementation of their population and housing census programmes. Also countries in the region are being encouraged to plan and undertake demographic sample surveys within integrated household survey programmes to enable them obtain demographic and socio-economic data from the household sector on a continuing basis.

63. The African Household Survey Capability Programme (AHSCP) has been instituted to encourage and assist countries in the region to develop the capability for the continuing programme of household surveys and already 18 countries have been enrolled in the Programme and others have expressed the desire to be enrolled after the completion of their censuses in the 1980 round of censuses. 7 of the 18 countries have started implementing their survey programmes which are expected to have demographic component.

64. Under the circumstances the pace of activities in the field of ad hoc demographic sample surveys has been rather low during the period under consideration. The major activities in this field during the period have been the processing and analysis of surveys already carried out though at least one country, Togo, conducted an Infant and Child Mortality Survey.

TECHNICAL ASSISTANCE

65. It may be recalled that the African Census Programme (ACP) was instituted with funding by UNFPA to provide financial and technical support to 22 countries in the region to plan and conduct their population censuses during the 1970 World Census Programmes. The ACP formally ended in 1977 but due to the continued need for assistnace by many African countries, the ACP has been replaced by the Regional Advisory Service in Demographic Statistics (RASDS) also with UNFPA funding.

66. During the period under review the RASDS continued to provide technical assistnace to member States of ECA in population censuses, demographic surveys and civil registration. The RASDS has a team of six regional advisers in demographic statistics, data processing, cartography and civil registration. The full list of the RASDS professional team as of 1 July 1983 is given in Annex II.

67. Since the last Joint Conference the regional advisers have undertaken over 60 missions to over 40 African countries. The missions covered project formulation as well as advisory service and assistance in the implementation of projects. Also some of the missions were undertaken to monitor progress in on-going projects and/or to train local personnel in specific fields. A number of the missions were undertaken in response to requests from Governments or at the initiation of UNFPA headquarters or UNFPA country representatives. Other missions were initiated by the RASDS as part of the strategy of monitoring the progress of demographic data collection activities in ECA member countries. Such missions, however, were undertaken only with the concurrence of the Governments concerned.

68. In addition to the assistance being offered through RASDS, UNFPA has also been providing assistance to countries in the fields of population censuses and other demographic data collection activities through the provision of country experts in census organization, cartography, data processing, demographic data analysis and civil registration. Financial assistance has also been provided for equipment and training of local personnel.

69. Some countries in the region have also received assistance in implementing their census and other demographic data collection programmes on bilateral basis. Such assistance has been provided in the form of experts in specific fields, equipment and funds for the payment of local costs.

70. It must, however, be pointed out that compared to the period of the 1970 round of census, though more countries have asked for and received assistance for their census programmes in the 1980 round from UNFPA, the level of support at the country level seems to have decreased. The indications are that countries in the region have to bear increasing proportions of the costs of their census and civil registration programmes in particular the local costs of such programmes. It is thus essential that African Governments accord population data collection activities the appropriate status in their development programmes if the achievements in this field in the 1970s are to be improved or even maintained.

STATUS OF 1980-ROUND OF POPULATION CENSUSES

Sub-region and country	Date/Proposed date of Census Enumeration	Present status
NORTH AFRICA		
Algeria	February 1977	Census results published
Egypt	November 1976	Census results have been published in three volumes. These are: Vol. I Social and economic characteristics of the population; Vol. II Fertility internal migration and migration of workers and students; Vol. III Housing conditions of households in urban rural zones
Libyan Arab* Jamahiriya	July/August 1983	Census preparatory activities in progress. At the request of the Government, ECA provided advisory service in census cartography and finalization of questionnaire, tabulation, programme and analytical framework.
Morocco	September 1982	Census enumeration completed and data processing in progress.
Sudan*	February/March 1983	ECA advisory services provided census enumeration completed and processing of data in progress.
Tunisia	May 1975	Census reports published as indicated in ECA document E/ECA/PSD.2/28 presented to the second session of the Joint Conference. No further information received at ECA regarding other census publications since then.
WEST AFRICA		
Benin	March 1979	Census enumeration completed. Data processing has been delayed. Preparation of statistical tables still in progress.
Cape Verde	June 1980	Statistical tables of census results published. No information on publication of census analytical report.

WEST AFRICA (Cont'd.)

The Gambia*	April 1983	Census enumeration completed and processing of data in progress.
Ghana	March 1984	The census was originally planned to take place in March 1980 and a project document was prepared by the Government with ECA assistance and approved by UNFPA. Due to subsequent political developments the census enumeration data has been postponed twice. The Government is now testing the feasibility of combining census enumeration with population registration and issue of identity cards. It is expected that the tests would be completed early enough for the census enumeration to take place as planned.
Guinea	February 1983	Census enumeration completed. ECA provided technical advisory services in the final preparations and also during the enumeration.
Guinea-Bissau	April 1979	Financial difficulties delayed the completion of the census data processing.
Ivory Coast*	April 1975	Census results published.
Liberia*	February 1984	Project document formulated with the assistance of ECA and submitted to UNFPA. Cartographic preparations undertaken under another UNFPA - financed project - Demographic Surveys Phase II. Due to problems in the financing of local costs, Government has not made final decision regarding census enumeration data.
Mali	December 1976	Final census results published in five volumes. Plans have not yet been initiated for the next census expected to be carried out in 1986.
Mauritania*	December 1976 (Sedentary population) Jan-April 1977 (Nomadic population)	Census statistical tables on sedentary and nomadic population published. No information on publication of analytical and administrative reports.

WEST AFRICA (Cont'd.)

Niger*	May-July 1977 (Nomadic population in Northern areas); November 1977 (Sedentary population and rest of nomadic population)	It was expected that census statistical tables would be produced for each department and a methodological report published in two volumes. There is however no information on current status of the publication plan.
Nigeria*		No information on the next population census is available. The last census was conducted in 1973 but the results were cancelled by the Government
Senegal*	April 1976	Census statistical tables and methodological report have been published but no information on the publication of the analytical reports on socio-economic activities, education and migration.
Sierra Leone*	December 1985	The last census was conducted in 1974 and it had been expected that the next census would have been conducted in 1984 to fall within the period of the 1980 round of censuses but due to late start of census preparatory activities the census enumeration is now expected to be conducted in December 1985. Project document has been formulated and submitted to UNFPA.
Togo	November 1981	Census enumeration completed and data processing in progress.
Upper Volta*	December 1975	Census results including analysis published. Preliminary plans for the next population census in 1985 initiated.

CENTRAL AFRICA

Angola	1984 or later	Project document prepared and approved by UNFPA. The census had originally been planned for 1982 but it is now expected that a pilot census which would cover the entire Province of Luanda would be carried out in 1983 and a census of the entire country undertaken in 1984 or later
Burundi*	August 1979	Census data processing completed and the first volume of census results is expected to be published in August 1983.

CENTRAL AFRICA (Cont'd.)

Cameroon*	April 1976	Census results have been published in four volumes. No plans have been initiated for the next census.
Central African Republic*	December 1975	Though the last census was conducted during the period of the 1980 round of censuses, it was meant to be part of the 1970 round. Results of the last census have been published but there is no information on plans for the next census.
Chad*		Due to the political situation a population census was not conducted during the 1970-round and there are no plans yet to conduct a census in 1980-round.
Congo*	December 1984	Project document formulated and approved by UNFPA. Preparatory activities in progress.
Equatorial Guinea	July 1983	Project document formulated and approved by UNFPA. Census preparatory activities in final stages.
Gabon	August 1980	Census enumeration was completed and provisional results prepared but the Government rejected the census figure as being a gross underestimate.
Rwanda	August 1978	Census data processing completed. No information regarding publications issued.
Sao Tome and Principe	August 1981	Census enumeration completed and data processing expected to be completed in 1983.
Zaire	December 1982	Pilot census conducted in August 1982 and final preparatory activities including cartographic preparations in progress. Census enumeration originally planned for August 1983 but has been postponed to December 1983.

EAST AND SOUTHERN AFRICA

Botswana	August 1981	Census data processing completed and the following publications issued: - Census Administrative/Technical Report and National Statistical Tables - Guide to Villages and Towns in Botswana - Summary Statistics on Small Areas.

EAST AND SOUTHERN AFRICA (Cont'd.)

Comoros	September 1980 and July 1981; April/May 1982	Census enumeration was conducted initially in September 1980 and July 1981 and the provisional results prepared. The Government however, rejected the results and requested UNFPA for assistance to repeat census enumeration in 10 localities in April/May 1982.
Djibouti	January 1982	Census enumeration completed and data processing in progress.
Ethiopia*	April 1984	Project document has been formulated and approved by UNFPA. Cartographic preparation and other pre-enumeration preparatory activities in progress.
Kenya	August 1979	Census enumeration completed. Analysis completed but publication of report pending.
Lesotho	April 1976	Census enumeration completed and results published in four volumes.
Madagascar*	February 1983	The last census was conducted in 1975 as part of the African Census Programme and the census results have been published. No plans have been initiated yet for the next census.
Malawi	September/October 1977	Census enumeration completed and results published. Work on census analysis started in 1982 with UNFPA assistance.
Mauritius*	March-May 1983;	Population and Housing Census undertaken in 2 rounds. The first round involved the listing of buildings and housing units and the second the population census enumeration. ECA advisory services in demographic statistics, cartography and data processing provided.
Mozambique	August 1980	Census enumeration completed. Machine editing and preparation of final tables was expected to be completed by end of 1982.
Seychelles	May-August 1977	Census enumeration undertaken over a period of four months. Census report has been published.

EAST AND SOUTHERN AFRICA (Cont'd.)

Somalia*	February 1975	ECA advisory service in review of census analysis and preparation of outline of analytical/methodological report provided. Due to initial rejection of census results the tabulation and publication of 1975 census statistical tables have been delayed. Project document for next census in 1985 has been prepared and approved by UNFPA. ECA advisory service in census cartography being provided.
Swaziland	August 1976	Census results published in 1980 in three volumes: Volume 1 - Administrative Report and analysis Volume 2 - Detailed Statistical Tables Volume 3 - Population Projections.
Tanzania	August 1978	Census results expected to be published in 8 volumes. 7 volumes published and the last volume is at the printing stage.
Uganda	January 1980	Census enumeration undertaken but due to the inadequate preparations for the entire census programme and the political situation the census programme could not be successfully completed. Processing of the census returns have not been carried out yet, most of the completed census questionnaires have been lost. Plans have however been initiated to process the remaining completed questionnaires. Government has also requested UN assistance to conduct a demographic survey to provide data required for Governments development planning programmes.
Zambia	August/September 1980	Census enumeration completed and preliminary results published. Data processing in progress.
Zimbabwe	August/September 1982	Census enumeration completed and preliminary results published. Processing of data in progress.

* Countries which participated in the United Nations African Census Programme (ACP)

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DEMOGRAPHIC DATA COLLECTION AND ANALYSIS IN THE AFRICAN REGION - AN APPRAISAL OF THE QUALITY OF DATA

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DEMOGRAPHIC DATA COLLECTION AND ANALYSIS IN THE AFRICAN REGION - AN APPRAISAL OF THE QUALITY OF DATA

1. INTRODUCTION

1. In the late fifties and the sixties, most of the countries in the region lacked data and information for carrying out plans and policies of economic and social development. Thus the immediate task was to organize data collection in as much detail as was feasible and as expeditiously as possible. Hence the focus upto the early seventies was to fill up gaps in the quantitative aspects of data. Accordingly, almost all of the countries took a census, carried out surveys, strengthened the administrative machinery for the collection of several types of data like those on education, manpower, health, housing, food etc. and tried to improve the system of vital registration.

2. Today there are only three countries which have not taken a census, but all indications are that by the end of the cycle of the 1980 round of censuses i.e., by 1985 most of them would have completed at least one census - some may have two or more post independence censuses. Side by side with extension of geographic coverage, there has been an expansion in the types and varieties of information collected. Thirteen countries also participated in the World Fertility Survey and the picture of the demographic situation in the region is becoming clearer. Recently interest in household surveys has been shown by many countries and it is hoped that in the near future a large amount of information would become available.

3. As the planning needs multiplied, so did the requirements in terms of data and efforts in the direction of data collection were intensified. For proper planning, policy formulation and implementation of programmes it is obvious that the quality of information should be acceptable. Erroneous or biased data would lead to wrong decisions resulting in waste of resources, time and in many instances culminate in human suffering. Even though it cannot be ensured that field data are 100% accurate, it should be possible to ascertain the range of variation. Efforts should be made to reduce the range to the minimum within the constraints of time and resources.

4. Statisticians in the region have been aware of problems in their data and have generally attempted to give a frank appraisal in their reports on these enquiries. For example, many countries have prepared administrative/methodology reports spelling out the problems faced in the collection, compilation and analysis of the data. The lessons learnt have been useful not only to themselves in their later efforts, but also provided useful guidelines for data producers in other countries. Another salient aspect has been the preparation of analytical/evaluative reports and monographs which have brought out the qualitative aspects of the data and offered suggestions and recommendations for future efforts.

5. Thus side by side with attempts to produce the reports in a language understandable to users, publications have been more extensive and intensive. The diffusion seminars and other channels of communication have aimed to reach large segments of the population.

6. When little was known of the demographic, socio-economic and geographic profile of the population, it was very difficult to assess the quality of the information, but with more information, and improved techniques for analysis, it has been possible to evaluate the results and make some adjustments, corrections and other needed manipulations to the data so that they could be utilised for most of the planning needs, at least at the national level.

7. If the sixties and seventies were devoted for collecting as much detailed information as was necessary or feasible, the eighties should consolidate the position by attempts to improve the quality of the data. For this purpose it is necessary to know the types and varieties of errors, biases and deficiencies in the data and their sources so that remedial actions could be instituted. This paper attempts to bring out some of these as noted from analyses of data from the region.

2. TYPES AND VARIETIES OF DATA COLLECTED

8. According to information available in the files at ECA, Table 1 shows the situation in regard to the types and varieties of data collected during recent censuses in the countries of ECA region. It is easy to note that all the countries attempted to cover the basic information recommended by UN and ECA. Local needs and priorities determined additional or special topics or items. Whereas some countries combined census of population with that of housing, others conducted these two operations separately. A few added items bearing on agriculture and live stock in the population/housing census and there were also full fledged agricultural censuses in the region. Thus, there is evidence to suggest that there has been extensive collection of demographic, socio-economic and geographic data and the data are becoming available to the planner and programme administrators.

9. Along with the increase in the number of items canvassed, there has also been expansion in the scope and details of tables prepared. Computers and their peripheral equipment have played an important role in this and also in the preparation of sample data tapes which have been available to researchers for detailed or specialised studies.

10. Censuses have been supplemented by surveys, administrative operations and in a few cases by vital registration systems. In this connection, the role played by WFS is worth mentioning and it is hoped that more countries would carry out similar surveys not only on fertility but also on mortality and population distribution/migration. Two of the most serious population problems perceived by African governments based

Table 1

Number of countries collecting specified information in their census during the period since 1975 (Based on reports from 38 countries)

A. Demographic characteristics

Characteristic	No. of countries	Characteristics	No. of countries
Sex	All	Children living/dead	22
Age	All	Births past year	24
Relationship	36	Survival of past year birth	23
Marital status	36	Parent survival	10
Age at marriage/ duration of marriage	1	Survival of spouse	1
No. of spouses	3	deaths in h.h.	13
Children ever born	25	Physical status/ disability	2

B. Geographic/migration characteristics

Characteristics	No. of countries	Characteristics	No. of countries
Usual place of residence	28	duration of residence	16
Place of birth	34	place of origin	5
Place of previous residence	10	place of work	4
Residence at specified time	14	residence status - present/absent	21

C. Social/personal characteristics

Characteristic	No. of countries	Characteristic	No. of countries
Citizenship/ nationality	31	Language/spoken	31
Religion	10	School attendance	32
Ethnicity/tribe	14	Educ. attainment	32
Literacy	21	Educ. qualification	10

Table 1 (cont'd)

D. Economic characteristics

Characteristic	No. of countries	Characteristic	No. of countries
Activity status economic activity	24	Empl. status	29
Occupation	31	Sector of empl./type of establishment	5
Industry	27	Secondary occ.	4

E. Housing characteristics

Characteristic	No. of countries	Characteristic	No. of countries
No. of house/dwelling units	6	Tenure/type of occupancy	18
Type of housing unit	13	Source of water	20
Quality of housing/ condition of dwelling unit	2	Toilet facility	17
Construction material of wall	20	Bathing facility	4
Construction material of roof	19	Cooking facility (kitchen)	7
Construction material of floor	11	Source of fuel	5
Age of building	6	Source/type of lighting	16
No. of rooms	12	Transportation	6

F. Community level variables

Variable	No. of countries	Variable	No. of countries
Source of water supply	2	Availability of primary school	5
Availability of electricity	2	Distance from nearest hospital/ clinic/health centre	1

on the third and fourth enquiries by UN on the population situation were health/mortality and uneven population distribution/migration.

11. Censuses, surveys and administrative operations cannot supplant the important role played by vital registration system. Every effort must therefore be made to assist governments to improve the system.

12. Data evaluation, analyses and utilisation have, however, not kept pace with data production. To give maximum benefits to countries in the region, it is imperative that concerted effforts be made in the 1980s to encourage fuller analyses and utilisation of the available information. Training of personnel would be a step in the right direction. Analytical monographs illustrating data evaluation, analyses and utilisation also would be helpful.

3. QUALITY OF DATA

13. One of the fundamental information any country needs is the size of its population. Even though it is impossible to obtain a precise figure, most countries would be interested to have information on its population size as on a particular date, perhaps to the nearest hundreds or even thousands. Since basic demographic characteristics like age and sex influence and are influenced by socio-economic factors, it would be desirable to have the age-sex distribution in as much detail as possible to serve various needs like planning for education, housing, health, manpower, food supply and so on. An important aspect of population is its dynamics, i.e., its change over time and hence information on components of population change, viz., fertility, mortality and migration are essential for estimating future population size, composition and distribution. Characteristics like education, economic activity, household headship etc. are very necessary forplanning socio-economic programmes. Thus for proper planning and programming it is essential to have ideas about the accuracy or reliability of information on these various aspects of a population. The experience in the region is illustrated in this paper by a few examples. The intention is to bring out the important aspects of the situation so that the lessons learnt could benefit future producers and users of similar data.

3.1. Population Count

14. With only fragmentary information available when the first post independent national censuses were undertaken in some countries, the population figures looked suspicious and resurveys, analytical techniques etc. had to be applied to ascertain the reliability of the reported figures. For example, in the 1973 census of Sudan because of very low growth rates, underenumeration was suspected in respect of the nomadic population, of the population in Blue Nile and in the Southern provinces. At the same time, analyses and information indicated that some of the foreign born reported themselves as Sudanese in Kassala province. In Botswana, the very high growth rate of population between 1971-1981 has been explained by better enumeration in 1981, improved health conditions resulting in drastic fall in death rate with no consequent fall in fertility, inclusion of refugees and foreign population, return migration etc. It is well known that in Nigeria the figures from the 1973 census were discarded because of the possibility of sizeable errors similar to those found in the 1963 enumeration.

15. Coverage evaluation is very difficult especially when independent sources are either not available or are equally or more biased. To ensure a good enumeration certain basic elements like cartographic preparation, publicity, special enumeration techniques for groups like nomads and remote area dwellers, training of supervisors and enumerators etc. should be stressed. Political and other considerations may bias census returns and hence should be avoided. For example, omission of questions on ethnicity, religion, language etc. may, in certain countries, assist in procuring better quality data.

16. Post enumeration survey is an important tool in the coverage evaluation of a count but it has been used only in very few instances with some success. For example, Liberia (1974) and Cameroon (1976) are among those who claim to have been able to assess the coverage of their population by sex and broad age segments. In the case of Malawi (1966) and Kenya (1969), the PES clearly indicated underenumeration in the census and these formed the basis for correcting the census totals. In Ghana the 1960 census was followed by a PES combining coverage and content evaluation and collection of additional information. The initial effort was not very successful in respect of coverage evaluation but a detailed reconciliation check on 1/2 percent of the sample E.A's showed an over-enumeration of between 0.6 and 2.5 percent. The 1970 coverage error check did not yield any better results due to problems of matching arising out of lack of uniqueness of names. In the 1980 census of Zambia and the 1981 census of Botswana there were PES but from preliminary analyses it is obvious that the main objective of coverage evaluation may not be attainable. Since most countries lack other independent source for checking accuracy of count, PES may be utilised for this purpose as it is the only direct method of coverage evaluation. But it is to be stressed that it should be carried out with due care so that it serves the purpose. Indirect methods such as balancing equation and comparison with external sources may serve only supplementary roles and should not be utilised as a sole aid for checking coverage of an enumeration because of possible errors in the other sources.

17. Coverage evaluation may also be undertaken through techniques of demographic analysis. For example, coverage of certain segments of a population like young children, young adults, females etc. could be detected through analyses of age-sex distributions. Unfortunately, most of the evaluation in the region has been through consistency-convergency techniques and in situations where very little is known of the range of variation within which the true value should lie, the application of such techniques becomes a matter of judgement.

18. As in other parts of the world, enumeration completeness has been selective by age, sex and geographic distribution of the population. Very young children, young adults, females (or males) and mobile groups or remote area dwellers have been more omitted than others. With the available information, it has not always been possible to arrive at absolute figures of omission or duplication but some approximate range could be estimated because of availability of a larger volume and time series of data and more sophisticated analytical tools.

19. There has also been observed to be selectivity in respect of characteristics of the individuals omitted or included. For example, enumerators have been aware of persons in single member households, of young unmarried females, infants and children in high mortality areas, nomads and remote area dwellers. In one census, omission was because a rather long questionnaire covering additional topics was used. Another reason for omission has been the number of rows in the questionnaire which has been noted to result in additional members being not recorded. Similarly, omission of special groups due to benefits/disbenefits also is not unknown. Instances of double counting of persons have been noted due to the de jure method of enumeration especially in joint and extended family systems. Omission/duplication may be consequent on inclusion/exclusion criteria in counting. For instance, if rules are not complementary then there could be duplication or omission depending on the relative stringency of inclusion/exclusion criteria. Exaggeration numbers has been noted because of anticipated social, economic or political benefits. There have been instances of aliens reporting themselves as natives or hiding from enumerators and of people migrating to be included or excluded from counts. Sometimes, natural phenomenon like drought, floods etc. may disturb population settlement and affect count.

20. Thus there are several reasons for an enumeration to be affected and every effort must be made to ensure coverage completeness. As prevention is better than cure, it is advisable to keep these possibilities in mind and initiate remedial actions instead of waiting to complete the count and adjust the data. If the correctness of a population count is suspected, then the figure is of less value for characteristics and distributional aspects of the population as it would be difficult to ascertain which segment is affected. The main focus of a census should be to obtain as accurate a figure as is possible and then only comes the question of composition, distribution, dynamics etc.

3.2. Age and Sex

21. Two of the most important basic demographic variables are age and sex composition of a population. Not only do they determine the dynamics of the population, they also are determinants of several social, economic, cultural, geographic and physical aspects of a population. Hence accuracy of information on age and sex is fundamental and caution should be exercised in the collection, compilation, interpretation and utilization.

22. Age is one of the most important variables for which accurate information is difficult to obtain in most of the countries in the region. This has been due to less importance given in the societies to an exact age rather than to a gradation of cohorts. Since most countries lack continuous registration of vital events and have only hazy ideas of the level, pattern and trends of vital parameters, a reasonably accurate age data would have been of immense value for the estimation of vital parameters. Since it may be easier to improve age data, efforts should be put in this direction side by side with strengthening the vital statistics system.

23. There should not be any difficulty in the collection of information on the sex of an individual. However, the actual situation is different. Several factors like cultural patterns, indifference, deliberate misstatements or omissions intervene to bring in

deficiencies in sex reporting of a population. Recording and processing errors also have been noted. Since sex ratio at birth and of a closed population are quite stable and not difficult to estimate, it is possible to assess errors, biases etc. in data and adjust accordingly. However, it is always preferable to have reasonably acceptable data from the field itself rather than to adjust an erroneous one.

24. As mentioned in connection with coverage completeness, there are certain age-sex segments which are less completely enumerated than others. For example, it has been a more or less general observation that infants and very young children are omitted from the count. It has even been noted that in a few instances, the number of births reported in the households during the past year taking account of deaths reported among these are quite different from the number of infants reported on the schedule. Since in most cases birth-death reporting may be deficient and usually on the lower side, a reported number of infants less than the survivors of births of past year is a clear indication of omission or age reporting errors. Even at aged 1-4 there have been deficiencies. Either it could be outright omission, age shifting or duplication. The errors also have been more for one sex or the other. In the 1978 census of Tanzania, for example, there were reported to be 804317 births in the past year as against an infant population of 697690 implying an implausibly high infant mortality rate of 333. On the other hand in Botswana 1981, there were only 39173 births but 42702 infants were reported. Whereas sex ratio of infants was much above 100 in Libya and Sudan from their 1973 censuses, it was less than 100 in Tanzania 1978 and it was near 100 in Botswana 1981 and Kenya 1979. One of three possibilities exist in cases where the sex ratio is abnormally high or low (i) omission/duplication of infant of one sex (ii) age shifting and (iii) wrong reporting of sex. In de jure counting especially in societies where young children spend a long time in grand parents houses, it is possible for these children to be reported in more than one household. Duplication also is possible if some benefits like free milk, medicines etc. are given. Due to misunderstanding, misinterpretation or incomplete recording, cases have been met where a child of under one year is reported as one or more years old. For example, a child may be reported as 7 months old and recorded as 7 and coded and tabulated as 7 years. Instances of many children aged less than one year whose actual month of birth or number of months since birth were not known, were reported as 11 months old and tabulated as 11 years, depleting the infant population and bloating up those in age 11. Again it has been observed that respondents are unable to understand how a child can be 0 years old and hence report infants as 1 year old. All these could be sex selective. In some cases the sex column may be left blank because the name suggests the sex and at the processing stage errors could crop in. There are several names similar between the sexes and sometimes the difference may be only in the last vowel, as in Arabic or Hispanic names. Hence if writing of names is not clear, interchange of sex becomes a possibility.

25. Thus some infants are omitted outright and some are shifted to another sex group or age group or both. It has been found that even the children aged 1-4 years are much less than what one would expect from the fertility-mortality conditions. In addition to omission, there could be shifting to the higher age. Since infant and child mortality, fertility levels and sex-ratio at birth are not accurately known, it is imperative that every avenue to ensure a good count of the very young ages should be sought.

26. Some of the omitted child population is reported in age 5-9 years and in a large number of instances children aged 10 and above also are reported as aged 5-9 years because of age determination for education and unwillingness to fill the long questionnaires which are usually for those above age 10. This phenomenon thus depletes those aged 10 and above unless partially compensated by wrong transfer of children 10 and 11 months into this age group. For instance, based on the population aged 0-4 the 1973 census of Libya indicated a birth rate of 52.8 but the 5-9 age group showed a birth rate of 59.2. In Lesotho the corresponding values were 34.2 and 37.8. In Libya in addition to the above factors indicated for age shifting, there was an additional reason based on the census interval. Ages were estimated in most cases based on an identity document issued in 1964 and in 1973 digit 9 became preferred. Similar digit preference results from asking date of birth and use of event calendars.

27. In the young adult ages omissions occur because of mobility, marital status, and other socio-cultural reasons. For instance, a female who is married may be reported as older and one who is still single may be shifted to a younger age. Mobility may result in some members of households not being reported as is suspected in the 1967 census of Tanzania. In the earlier censuses of Libya, omission of females was noted especially in young adult ages. In the reproductive age group, males are shifted to older ages and females are shifted from the younger and older ages into the reproductive ages with the result that in most countries the sex ratio in this age segment, i.e. 15-49 years is much lower than 100.

28. At older ages the tendency is for age exaggeration and this is observed to be more for males than for females. This results in abnormally high sex ratios at ages 70 and above and also the proportions at these older ages look incompatible with estimated mortality levels.

29. The net effect of these shifts are seen in fluctuating age and sex ratios culminating in a large joint score, a rather high mean age of the population, high mean age at birth of children and of fertility, high survival ratios at older ages and excessive values of total fertility rates.

30. Table 2 presents some indices of age-sex data quality. It is clear that only one country has a UN joint score less than 20 whereas 2 others have values very near 20, i.e. the data can be considered as accurate. Around two thirds of the countries, for which age-sex data were available, indicated 'highly inaccurate' data.

31. Another index (the Myer's digit preference index) also indicated similar results. For example, the rank correlation between the UN joint score index and the Myer's indices were near .8 for both sexes. This value of the correlation coefficient is highly significant.

32. Table 3 presents these indices from their 2 recent censuses. A look at the values clearly show that there has been improvement in single year and five year age-sex data.

Table 2. Age ratio, sex ratio and Joint Scores, Myers indices and data quality rating

Country	Census Year	Age Ratio Score M	Age Ratio Score F	Sex Ratio Score	Joint Score	Quality Rating	Myers Index M	Myers Index F
Algeria	1977	5.3	5.5	3.1	20.1	B		
Egypt	1976	10.2	14.2	8.1	48.7	C		
Morocco	1971	14.2	25.2	16.2	88.0	C		
Socialist People's Libyan Arab Jamaharia	1973	5.6	11.0	6.1	34.9	B	9.8	25.8
Sudan	1973	17.7	20.7	9.6	67.2	C	48.2	55.0
Tunisia	1975	6.9	5.2	5.3	28.0	B	.	.
Cape Verde	1970	12.7	12.6	5.8	42.7	C		
Gambia	1973	15.1	25.3	14.7	84.5	C	44.7	51.0
Ghana	1970	8.3	11.6	7.6	42.7	C	26.8	31.2
Ivory Coast	1975	5.8	9.2	10.6	46.6	C		
Liberia	1974	11.2	14.6	11.8	61.2	C	27.5	29.4
Mali	1976	9.6	19.5	12.2	65.7	C		
Nigeria	1963	29.0	36.4	14.1	107.7	C		
Senegal	1976	4.5	5.6	8.4	35.3	B		
Sierra Leone	1974	13.0	16.1	8.5	54.6	C	44.4	47.2
Togo	1970	18.7	19.0	11.6	72.5	C		
Upper Volta	1975	10.1	14.1	10.1	54.5	C		
Cameroon Un. Rep.	1976	5.6	6.8	5.6	29.2	B		
Central Afr. Rep.	1975	18.9	26.2	9.7	74.2	C		
Congo	1974	4.9	4.1	5.3	24.9	B		
Gabon	1960	11.4	13.2	9.9	54.3	C		
Botswana	1981	3.4	5.2	3.6	19.4	A	7.1	6.8
Djibouti	1983	15.8	20.5	9.9	66.0	C		

Table 2 (Cont'd)

Age ratio, sex ratio and Joint Scores, Myers indices and data quality rating*

Country	Census Year	Age Ratio Score M	Age Ratio Score F	Sex Ratio Score	Joint Score	Quality Rating	Myers Index M	Myers Index F
Kenya	1979	3.6	4.0	4.2	20.2	B	12.4	15.4
Lesotho	1976	9.2	8.7	5.3	33.8	B	10.4	9.6
Malawi	1977	14.4	9.2	8.3	48.5	C	12.9	16.6
Mauritius	1972	8.7	8.4	2.9	25.8	B		
Mozambique	1970	10.9	13.6	8.0	48.5	C		
Seychelles	1977	4.4	7.8	7.6	35.0q	B		
Somalia	1975	43.6	50.9	14.7	138.6	C	61.6	68.6
Swaziland	1976	8.9	5.2	5.6	31.9	B	14.1	14.7
Tanzania Un.Rep.	1978	10.0	9.0	3.8	45.4	C	25.2	32.1
Uganda	1969	8.3	12.3	8.9	47.3	C	24.6	33.3
Zambia	1969	14.4	8.0	14.6	66.2	C	14.1	15.3
Zimbabwe	1969	10.0	9.9	3.8	46.3	C		

The quality rating is: A: Score between 0 and 20 - Accurate
B: Score between 20 and 40 - Inaccurate
C: Score above 40 - Highly inaccurate

Table 3. Age ratio, Sex ratio and Joint scores for selected countries from their recent two censuses

Country	Year	Age ratio Score M	Age ratio Score F	Sex ratio Score	Joint Score	Myers Index M	Myers Index F
Ghana	1960	12.4	14.4	8.8	53.2	29.6	31.2
	1970	8.3	11.6	7.6	42.7	26.8	31.2
Kenya	1969	5.1	7.4	6.7	32.6	21.2	22.2
	1979	3.6	4.0	4.2	20.2	12.4	15.4
Lesotho	1966	10.0	9.7	6.5	39.2	11.8	12.8
	1976	9.2	8.7	5.3	33.8	10.4	9.6
Libya	1964	13.4	21.1	14.4	77.7	46.5	70.3
	1973	5.6	11.0	6.1	34.9	9.8	25.8

33. Usually the enumerator has to estimate the age of persons in the household (e.g. at the 1974 census of Liberia it is stated that more than 90% of ages were estimated by enumerators) those whom he sees and many he does not see, using a calendar of events, age-grade cohorts, physiological changes, documentary or other evidence, physical appearance, marital status, fertility level, hierarchical position in household, relationship of members and so on. Inspite of all these, many persons may be reported as 'age not stated'. Imputation and other tools of adjustment are risky and can vitiate any findings. Especially if the omission is affecting as large as 17% as noted in the 1974 sample census of Zambia, the age data becomes of very little value. It is easier and much safer to estimate age in the field itself, however approximate it may be. Another important matter worthy of mention here is that inspite of the fact that single year of age data would be subject to large magnitude of errors, biases and deficiencies, it is advisable to collect it and present it. This would enable the analyst to arrive at a better picture of the true situation in the country than if he were only provided with quinary or other broad age group data. Appropriate techniques exist for evaluating and adjusting such data.

3.3. Relationship, Marital Status, Fertility, Mortality and Physical Status

34. The question on relationship inquired in censuses is not only for checking consistency of data or for ensuring completeness of count, it has a very important socio-cultural utility on its own. Hence efforts must be made to make the information available by proper coding of the information, tabulating it in required details etc. For example in the 1976 census of Lesotho information on relationship of members was collected, but at the coding stage it was left out, thus depriving the country of an important piece of sociological information. In others, tabulations are not prepared in sufficient detail to draw the maximum benefit.

35. In addition to conceptual problems in the definition of marital status, there are problems in the reporting and recording of the information. There is a tendency for some divorced or separated persons to be reported as 'single' or 'never married'. Then there are problems brought in by differential coverage by sex and age reporting errors.

36. Fertility data is usually affected by underreporting and age misstatements. In several instances confusion between 'zero parity', 'not stated' and 'not applicable' have affected the information. An instance where only female children ever born were recorded because the question was for females only has been noted and in another instance grown up children were omitted because 'they were no more children'. Coding has had its due share in vitiating information on parity. For instance in the 1976 Lesotho census, the 'not stated' and 'not applicable' cases were given the code 99 which resulted in serious problems in parity data. Similarly, in the 1978 Tanzania census the same code for 'not applicable' and for those with '8 or more children' has been noticed to have created analytical problems. It is advisable to tabulate parity in such details as to derive the total number of children, if the figure is not explicitly given in the tables especially when a large percentage of women are reported with high parity. Coding, punching and other data processing errors also have resulted in high parities at young ages. Omission of children living elsewhere and those dead is also not uncommon. It is suggested

that children ever born should be collected and tabulated by sex of children and details like those living here, those living elsewhere and those dead should be included in the questionnaire for consistency and other checks. Memory lapse is not only for past events, it can occur even for recent events. As noted earlier in the case of Botswana the number of births of a recent year could be less than the reported number of infants. Even the latter may be an under reported figure. There is also the problem of reference period error and omission of children who died in early infancy. One indication of memory lapse can be noticed from the number of births reported for past years in the 1973 census of Sudan where the ratio of those reported for the period two, three years before census to those reported for the current year was only 0.72 and 0.60 respectively.

37. The question on deaths in the household in the past year has not been successful in most cases. Thus mortality information has to be based on indirect methods like those developed by Brass et al on child, spouse, sibling and parent survival.

38. Very few countries canvassed information on physical status, disability etc. Inspite of ECA finding that 'questions on disability (mental or physical) can best be investigated in a health survey with specially trained interviewers', a few countries collected the information and used it for planning purposes.

3.4. Geographic characteristics, Migration, Ethnicity, Nationality, Language Religion etc.

39. The spatial distribution of a population is very important and as indicated by member countries in the region the problems arising from uneven population distribution have been perceived to be major. Apart from enumeration completeness by geographic aspects, there are problems in analysis and interpretation of data due to changes of place names and boundaries of civil divisions. This is compounded by difficulties in presentation of data at small area levels. Countries may start with ambitious schemes in identifying persons at very small geographic levels, but when it comes to coding, tabulation etc. some of these may have to be compromised. An example of this is from the 1973 census of Sudan where at the final tabulation stage only provincial urban-rural information was presented, even though information was collected in very great detail in the questionnaire. Some countries discontinued collecting information on ethnicity, tribe etc. because of socio-political and other reasons. Admitting that the information has great sociological importance, if it would affect data quality, it is advisable to delete it from census enquiries. The same may be true of religion and language. The question on nationality is yet another one which has created suspicion. In some countries, as for instance in Sudan 1973, nationality may have been wilfully reported wrongly to avoid problems or to get some benefits. In others as suspected in 1970 census of Ghana, omission of some nationality groups may be a great possibility. Place of birth is a simple question to answer, but when someone else reports for members of households, the answers may not be correct. Deliberate misreporting perhaps may be only for foreign born or minority groups. The question on rural-urban nature of place of birth could create confusion as to whether the answer should pertain to present situation or situation at the time the respondent moved.

3.5. Education and Economic activity

40. Reference has already been made to the fact that age data get vitiated because additional information is canvassed only on certain segments of a population. Also mention was made of age estimation being affected by schooling status. While it is clear that the reporting of age-sex characteristics would be better among those who are attending or have attended school than among the others, certain types of errors are peculiar to the former. For instance, an observation has been made that in countries where age or date of births is unknown or is rare, children are assigned dates of birth by schools at admission. One would find large numbers of children with same date and months of birth but perhaps with different calendar years. Age shifting could result from such a phenomenon. A problem of those who were in a terminal class previous to a census which was conducted during the holidays is that many would be reported either as in the school or outside depending upon how the question is asked. For females, it has been noticed that it reduces enrollment ratios. The question on literacy is well known to be difficult to obtain accurately because of several reasons. Another problem is the tendency for persons to report the standard attending as that attained or vice versa. Category climbing is noticed in respect of question on professional qualification and highest grade/level completed.

41. The problem in the collection of economic activity data is even more widespread. Age reporting errors could bring in a saw tooth pattern in participation rates and there is also the problem of selective omission by age and sex due to one reason or another. Here also two tendencies have been noted. If the additional work involved in canvassing the long questionnaire containing economic information is not properly remunerated, the tendency is to push persons to lower or higher ages to avoid the extra work. On the other hand, if payment is according to number of questionnaires filled in, then the opposite tendency of pushing young and old persons into the economically active age might occur. Definition of the concept is yet another source of great difficulty to those carrying out data collection - whereas in some countries almost all of the females are reported as economically active, the other extreme of very few being reported also do occur.

4. CONCLUSIONS AND RECOMMENDATIONS

42. Analysis of the data from censuses in the region have indicated that the usual types of errors and deficiencies were prevalent. However, there is indication that the magnitude of these deficiencies have reduced and definite improvement is shown in age-sex reporting. The evaluation and analysis indicated that some of these errors could still further be reduced and efforts should be focussed in this direction.

43. There has not been enough analyses and evaluation of data commensurate with data availability. It is recommended that greater attention be given to a fuller evaluation and analyses of the data collected.

44. Comparative analysis of data from the various countries bringing forward the experiences of diverse countries seem to be worth attempting. The experiences of other countries could be useful in improving the data in countries that have problems of data quality.